THE LANCET.

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PUERPERAL INFECTION.

THE report by Dame JANET CAMPBELL on the Protection of Motherhood,[1] to some of the general aspects of which we have already called attention,[2] will be read with special interest by those engaged in obstetric practice, for in spite of all the measures that have been taken since the war the maternal mortality-rate remains but little altered, and sepsis is still responsible for approximately half the deaths in childbirth. The overwhelmingly prevalent organism in puerperal infections is the streptococcus. This field of bacteriology has been widely explored in recent years, and no case has been made out for the existence of a specific puerperal streptococcus. Classification of the various strains and types of organism isolated from cases of sepsis has been impeded by a lack of a nomenclature common to the different laboratory workers. The most recent work from St. Bartholomew's indicates that a preliminary grouping into hæmolytic and non-hæmolytic varieties is unsatisfactory, since the property of hæmolysis varies within fairly wide limits, according to whether the cultures have or have not access to oxygen. If this work is confirmed, the identification of the infecting organism becomes an even more complex problem than had appeared, for classification based on morphology and specific cultural characteristics is open to many objections, and even the property of virulence varies with the laboratory animal employed. Bacteriological investigation of the vagina and cervix during pregnancy indicates the presence there of streptococci in a small proportion of cases; it is commonly stated that these are not the organisms which cause puerperal fever, and the statement is made the basis of an argument against autogenous infection. That autogenous infection cannot, however, be positively excluded is proved by the sudden and definite rise in the puerperal septic rate which occurred in 1919–20, a rise which coincided with demobilisation following the armistice. The occurrence pointed strongly to the conclusion that the infected male urethra can and does infect the female genital tract; such an obvious potential source of infection raises the question of the advisability of instructing the public on the subject of coitus during pregnancy. French observers have found streptococci on the male genital organ in the absence of any venereal infection. These are arguments more forcible than any based on the morphology or even on the cultural characteristics of isolated streptococci, and they need for their proof or disproof such extended research as might be organised from the offices of the Public Health Committee of the League of Nations. For if once it can be established that the causative organism is not generally present in the genital tract before delivery, the problem is narrowed down to that of how it gains entrance during parturition or the puerperium. Not that the mode of entry is then a simple problem. The development of septicæmia after a labour conducted without internal examination or interference of any description is familiar to every obstetrician. Small epidemics arise now and then in lying-in hospitals and homes, where the technique is apparently aseptic. In the present report to the Ministry evidence is forthcoming of another mode of infection which has long been suspected—namely, from the infected air passages of the attendant. The throat and nose are well-recognised sites of the pyogenic streptococcus; here is the record of more than one epidemic of puerperal fever attributed either to the nose (empyema of the antrum) or the throat (septic tonsillitis) of the attending midwife or pupil. We know of evidence, not mentioned in the report, incriminating bedding as a source of puerperal infection.

Enough has been said to indicate the very diverse and complex nature of the mode of infection in puerperal fever, a consideration to be borne in mind when the statement is made that this is a preventable disease. Admittedly it is preventable, but prevention entails far more than the application of antiseptics to midwifery, of paramount importance though this is, and far more than the extension of antenatal clinics or of hospital facilities for lying-in women. Until such time as we are in a position to prevent the entry of organisms into the genital tract, the first step in the prevention of the disease is to raise the resistance of the patient to the prevailing organism. It is essential for us to know what is the best specific prophylactic measure to employ for the prevention of streptococcal infection, how long it takes to acquire such immunity, and what is its degree and duration. As yet we have no exact knowledge on these points. If the prophylactic measures now available are meagre, our knowledge of the therapeutic measures which can be usefully employed, once the infection is established, is even more so. In reporting to the North of England Obstetrical and Gynæcological Society in 1926 a committee appointed to investigate puerperal blood infections stated: "The committee have been faced with the difficulty that a variety of different methods have been employed in almost every case, and they feel it is quite impossible to express a definite opinion as to the efficacy of any particular method." The same criticism might have been applied to the treatment of eclampsia before the Eclampsia Committee of the Royal Society of Medicine began to take the matter in hand in 1924, since when cases were treated on more uniform lines and results of comparative value obtained. In the London area an attempt at coördination has been made by grouping cases of puerperal fever into two main hospitals of the Asylums Board, under the care of an obstetric consultant, and the time is ripe for a more general extension of this principle. Theoretically two quite different lines of treatment are available. The one in more general use in this country is to raise the resistance of the subject by autogenous or stock vaccines, and by the use of sera and simple or immuno-blood transfusions. The other, more frequently employed in America than in this country, is to render the blood unsuitable for the growth of organisms by injecting chemical substances such as mercurochrome. We need a controlled series of investigations comparing these two lines of treatment, and the researches of L. E. COLEBROOK suggest a line along which such an investigation might be carried out. When it is demonstrated by his methods that the leucocytes have lost their power of attacking organisms, the "American method" might be employed. When it is found that this property is retained though in diminished degree, an attempt might be made both to produce an artificial leucocytosis and to increase the circulating antibodies.

[1] Ministry of Health. Reports on Public Health and Medical Subjects. No. 48. H.M. Stationery Office. 1927. Pp. 87. 2d.
[2] THE LANCET, 1927, ii., 1352.

We must admit that, while some gaps in our knowledge of puerperal fever have been filled, many still await solution; we know, indeed, little more of the pathology of the disease than did CHARLES WHITE or SEMMELWEIS.

GASTRO-DUODENAL ULCERATION.

PEPTIC ulcer is a curious affection which has baffled all attempts to elucidate its ætiology. Many surgeons following the teaching of the Mayo Foundation, based upon the experiments performed in the first instance by E. C. ROSENOW, regard the lesion as set up by streptococci which have travelled from some other focus in the body, living in which they have, by some mysterious and unexplained mechanism, acquired a special affection for the tissue of the gastric wall. L. R. BRAITHWAITE, in this country, has shown how lymph from the appendix may, in disease, travel up to the region of the greater curvature of the stomach, and other surgeons have seen in this the path by which streptococci causing appendicitis reach the stomach to cause gastric ulceration. This alluring hypothesis, however, is not satisfying to the critic who is aware that the histology of gastric ulcer is as unique as the reaction of the tissues to the tubercle bacillus, and quite unlike the picture of the defence set up to streptococci lodged elsewhere in the body. Neither are we quite sure that high acidity is a necessary condition for ulceration to occur, even if it is fairly certain that diminished secretion by the stomach is unfavourable to its onset. This honest doubt as to the causation of gastro-duodenal ulceration is reflected in the perennial argument and dispute which centres around the treatment of this condition, and is well illustrated in the proceedings of the Washington meeting of the American Medical Association which are now available.[1] As usual there were strong advocates of radical resections in all cases, and others who were only forced to adopt such measures after simple methods had failed to cure the patient. R. LEWISOHN (New York), for instance, contended strongly for routine resection in all cases, and in this he was supported by G. W. CRILE (Cleveland) so far as gastric ulcers are concerned—a position taken up by a large number of English surgeons.

The greatest difference of opinion occurred over the treatment of duodenal ulceration. C. H. MAYO and D. C. BALFOUR (Rochester, Minn.) expressed firm conviction of the inadvisability of resection of the duodenum. Their experience is so large and agrees so closely with that of Sir BERKELEY MOYNIHAN that great weight must be attached to it. Yet from time to time accounts appear of series of cases where gastro-jejunostomy has failed to bring about such good results. E. R. ARN (Dayton, Ohio), at the Washington meeting, spoke of having studied 200 cases of gastro-jejunostomy, performed for some lesion in the duodenum, which had subsequently come under his care because of persistence of their symptoms, or because of the occurrence of hæmorrhage or perforation; in all of these when the abdomen was reopened the anastomosis appeared to have been performed satisfactorily. Other observers have found that the number of poor results from gastro-jejunostomy for duodenal ulcer increases as year by year elapses from the time of the operation. Evidently further study of this question is required. If in the long run resection should prove more effective it is reasonable to suppose that technique would be evolved which would eliminate some of its present dangers. All surgeons agree that a large resection should be performed when marginal or jejunal ulceration has followed gastro-jejunostomy, and that resection should be attempted if possible whenever the original ulcer has remained unhealed, thereby tacitly admitting the greater efficacy of the more severe operation. Whether a radical policy ought to be adopted in the first instance can only be decided by more complete investigation than has yet been made. A great advantage of duodenal resection for the patient is that he need not, as after gastro-jejunostomy, take any special care about his diet.

One thing, however, is certain. The view is gaining ground that neither duodenal nor any other form of peptic ulcer should receive surgical treatment until a thorough medical cure has been tried. A good illustration of this is given in a paper which we publish in this issue by Prof. H. MACLEAN and two of his colleagues at St. Thomas's Hospital. By the intelligent use of intensive alkaline treatment, combined with a suitable measure of rest, practically all uncomplicated ulcers have in their experience been cured in a comparatively short time with little or no discomfort or inconvenience to the patient. The alkali used is the familiar mixture of three carbonates—soda, magnesia, and bismuth—a teaspoonful of the powder being given in milk, at first two-hourly by day and as often as necessary by night. This treatment, which has often shown good results after other methods have failed, has been controlled by X ray observation revealing from week to week the steady filling up of the ulcerous crater until it is completely obliterated. Some of the radiograms reproduced with Prof. MACLEAN'S paper are almost diagrammatic in their precision. While, then, it is possible that resection of the duodenum may become the correct surgical treatment for ulcer in this situation, it is more sure that when real knowledge of the disease is acquired some simple non-operative measure will be substituted for large resections of the stomach and for physiologically disturbing anastomoses between segments of the alimentary canal. Surgery, our standby in the resistant case, will then only be called upon to relieve the neglected patient.

[1] Journal of the American Medical Association, 1927, lxxxix., 1649, ff.

THE REGISTRATION OF MEDICAL STUDENTS.

AT the last meeting of the General Medical Council a Report was presented by Sir HUMPHRY ROLLESTON, Chairman of the Education Committee, on the Revision of the Regulations for the Registration of Students, which dealt with a matter whose difficulties are not generally comprehended. Earlier in the year the Committee had been instructed by the Executive Committee to obtain further information in regard to examinations instituted by the various bodies, and this information was attached as an appendix. A feature of the Report was the making clear that University matriculation admitting to the faculties of arts or pure science would be ipso facto recognised, while in other faculties the certificate must bear evidences of passes of the matriculation standard in four specified subjects. The continued recognition of the examinations of the College of Preceptors was justified in the Report by the publication of a letter from the Dean of the College, expressing willingness to modify the requirements of the College in order to bring its examinations into line with those of other bodies. There is no doubt that the College of Preceptors, and equally the Scottish Educational Institute, fill gaps in the secondary education scheme of the countries, and this fact has been properly admitted.

The registration of medical students is not compulsory, and the instructions of the Council are worded as recommendations thus :—

1. Subject to such exceptions as the Council may from time to time allow, every medical student, at the commencement of his studies, should be registered in the manner and under the conditions set forth in the regulations.

2. Before registration as a medical student every applicant should produce evidence that he has attained the age of 17 years.

3. The minimum standard of general education required of applicants is that of a university matriculation or entrance examination in the faculties of arts or pure science. In other faculties the examination must be of the same standard and include the subjects prescribed in the regulations.

4. Before registration as a medical student every applicant should be required to have passed a recognised examination in general education, and, *in addition thereto*, an examination (theoretical and practical) in elementary physics and elementary chemistry conducted or recognised by one of the licensing bodies.

5. A student who has diligently attended an approved course of instruction in elementary biology at a secondary school or other teaching institution recognised by a licensing body may be admitted to the professional examination in elementary biology immediately after his registration as a medical student.

6. The commencement of the course of medical study recognised by any of the licensing bodies should not be reckoned as dating earlier than 15 days before the date of registration.

7. Every person desirous of being registered should apply to the registrar of the division of Great Britain or Ireland in which he is residing, upon a form, copies of which may be had on application to the several licensing bodies, medical schools, and hospitals, or at the offices of the Medical Council in Great Britain or Ireland ; and should produce or forward to the registrar evidence that he has attained the age of 17 years, that he has passed a preliminary examination in general education recognised by the General Medical Council, and, *in addition*, an examination (theoretical and practical) in elementary physics and elementary chemistry conducted or recognised by one of the licensing bodies, and that he has commenced medical study.

The regulations set out the provisions for the maintenance of the register, giving lists of recognised examinations conducted by universities and other bodies in Great Britain and Ireland, the Dominions, and foreign countries.

The University students generally register with the Council, but such registration has not been made compulsory in spite of certain conveniences which might attach : the Examining Boards of the Royal Corporations in London apparently do not see any necessity for the proceeding, and the argument that a registration fee would be a source of revenue to the Council has lost its force in recent days, in view of the position in which the finances of the Council now stand. The student who does not register with the Council has, however, to go through exactly the same procedure elsewhere, for no Corporation will admit a candidate to its examinations without similar information to that required by the Council ; in Scotland no licensing body will accept a student unless he is registered, and all registered students are accepted by the licensing bodies of the kingdom without question, while the proceeding demands no fee. The candidate has to produce evidence of having passed the necessary preliminary tests before a certain date at the time when he presents himself for his first professional examination with his papers duly signed up for admission, so that the various medical schools see that the names are duly registered with the Corporations. The pattern of the preliminary examinations admitting to the status of medical student is thus not fixed by the Council for every student in the kingdom. We do not suggest that this implies any derogation on the part of any Corporation from the standard set up by the Council ; though as long as registration with the Council is not compulsory it is possible for this change to occur. Yet it is intelligible that the Corporations which provide the professional tests and grant the resulting diplomas should desire to control the conditions under which the students, whom they are later to examine for medical qualification, obtain their preliminary training. But it should be remembered that the General Medical Council is in charge, under its constitution and terms of reference, of "the courses of study and examination to be gone through . . . and the ages" of the students, "and generally as to the requisites for obtaining such qualifications," and may request the qualifying bodies for all necessary information thereon. The Students' Register is a convenient record, for the use of the medical schools, of authentic information on the preliminary training of students in the subjects of general education, and for this purpose the coöperation of the licensing bodies is needed.

Annotations.

"Ne quid nimis."

THE NEW YEAR HONOURS.

THE list of New Year Honours includes few medical names, but a good many of those who have been associated with medicine in their public work. Sir Kingsley Wood, the Parliamentary Secretary to the Ministry of Health for the past three years, becomes a Privy Councillor, and Major-General Sir Richard Havelock Charles, late President of the Medical Board of the India Office, receives a baronetcy. Knighthoods are conferred upon Mr. Frederic Hallett, formerly the secretary of the Joint Examining Board of the English Royal Colleges, whose strenuous labours in the systematisation of medical education are thus recognised ; upon Mr. Percy Sargent, honorary consulting surgeon to the Ministry of Pensions, whose valuable work on brain and spinal cord injuries is well known ; upon Dr. G. W. Badgerow, surgeon to the Hospital for Throat, Nose and Ear, Golden-square, and a recognised authority on his subject ; upon Dr. W. J. Wanless, of the American Presbyterian Hospital, Miraj ; and upon Mr. A. B. Lowry, the Chief General Inspector of the Ministry of Health. Other names in the list are those of Major-General J. S. Gallie, Deputy Director of Medical Services in the Aldershot Command, who receives the C.B. ; Major R. G. Archibald, director of the Wellcome Tropical Research Laboratories at Khartum, who receives the C.M.G. ; and Lieut.-Colonel C. L. Dunn, I.M.S., the Director of Public Health, United Provinces, who receives the C.I.E. Honours in the Order of the British Empire are almost confined to women. The C.B.E. has been conferred upon Miss Ellen M. Musson, R.R.C., chairman of the General Nursing Council ; the O.B.E. upon Miss Jeannette Halford, founder and hon. secretary of the National League for Health, Maternity and Child Welfare, and Miss Mary Thorburn, R.R.C., matron of the Mental Hospital at Horton, Epsom. The M.B.E. has been conferred upon Miss Margaret Sloan, lately principal matron, Government Medical Department, Hong-Kong ; Miss Ada Davies, lady superintendent of the Plaistow Maternity Hospital ; and Mrs. F. E. Pearse, inspector of midwives and superintendent of health visitors at Oxford. The Kaisar-i-Hind medal of the first class has been bestowed upon Miss Annie S. Graham, superintendent of the Lady Reading Health School, Delhi, and upon Miss Ellen M. Farrer, medical missionary, the Zenana Baptist Mission, Punjab. The list forms no profuse recognition of medical services rendered to the country, but all will regard the names selected for honour as worthy of public acknowledgment, and we congratulate the recipients thereupon.

DEFAULTING VENEREAL DISEASE PATIENTS.

AMID the other activities, experiences, and opinions recorded in the recent report of the British Social Hygiene Council there is some useful information on the working of legislation designed to prevent the discontinuance of treatment at venereal disease centres. In Great Britain public opinion still seems unprepared for a system of compulsory notification. Locally a step in this direction was taken a year ago in the Bradford Corporation Act. When, however, the Liverpool Corporation Bill this year proposed to make notification compulsory so much opposition was developed that the proposers were obliged to withdraw the clause. Evidently many think that compulsion will merely increase the patient's bias towards secrecy and his reluctance to consult a medical practitioner. Other countries—Scandinavia and Australia, for example—have made trial of legislative compulsion and the working results have been variously estimated. In the British Social Hygiene Council's report, for instance, Dr. Everitt Atkinson describes the experience of West Australia as favourable. He states his belief that there was not a single medical practitioner in the State who failed to notify cases of discontinuance. Defaulting patients, he explains, are not prosecuted immediately. The first step is the sending of a letter personally signed by the Commissioner (the State health officer for the purpose). If this fails the patient is visited—male patients by a health inspector, female patients by a nurse. The majority of defaulters apparently resume treatment when this second step is taken. If prosecution is found essential, it is conducted in the magistrate's room in camera; if the patient thereupon is prepared to go to hospital for the necessary period, the magistrate does not impose a fine; but if the patient leaves hospital without the Commissioner's consent, the prosecution can be reopened and the full legal penalty can be inflicted. The fine, it may be mentioned, is £5 for the first offence, £10 for the second, and £15 for the third. Women, says Dr. Atkinson, take the warnings more seriously than do men; it is therefore found that fewer women are prosecuted than men. Speaking generally, he observes that the legislation has been a success in West Australia and that the syphilis-rate is going down to vanishing-point. On the other hand, as regards the State of Victoria, Dr. E. Robertson is quoted as saying that in 50 per cent. of the cases where discontinuance has been notified, the patient cannot be found, though he points out that this need not mean that none of the defaulters is under treatment. He remarks on the inadequate accommodation for treatment. The only place, it seems, where male in-patients can be detained in Victoria is the prison. As to New South Wales, Dr. R. Dick states that venereal disease is still very prevalent in spite of legislation. He speaks of 6000 or 7000 notifications in the year for a population of 2¼ millions, and he reports the usual difficulty in tracing defaulters. He significantly cites one leading Sydney doctor as having told a recent Royal Commission on Public Health that he had never notified a case. Dr. Dick gives his opinion that the powers given under the Act are valuable in spite of the many difficulties. Their effect in Queensland, where according to the 1927 report which has just come to hand, there were 309 defaulters out of 602 male patients attending the Brisbane clinic, has been that 89 returned after a written request to complete treatment while the police were able to warn 119 although no trace could be found of 74 others, while 22 had left the State. In Great Britain the same difficulties are only too well known and their solution depends upon voluntary efforts. The last annual report of the Scottish Board of Health mentioned the steps taken in Glasgow to follow up defaulters and described the value of visits by nurses. It will be interesting to watch the working of the new German law [1] which has lately come into operation. Like the English statute it enacts that treatment for venereal disease can be given only by doctors. But it goes far beyond the English Act in providing for compulsory notification and treatment and imposing penalties for wilful exposure to infection. It also legalises the sale of prophylactics and it directs the doctor to explain to the patient the nature of his illness.

[1] THE LANCET, 1927, i., 565, and ii., 835.

RADIUM AND BREAST CARCINOMA.

AN interesting contribution to the study of the treatment of carcinoma of the breast with radium has recently been published by Mr. Sampson Handley in America.[1] Mr. Handley's theory of "centrifugal permeation" by carcinoma cells is well known, and this theory involves the belief that infection of the parasternal lymph glands proceeds coincidently with infection of the axillary lymph glands. It is possible to excise the latter, but the former are not accessible. Mr. Handley has therefore made it his practice during the last six years to insert radium tubes above the first rib and into the upper three intercostal spaces as a prophylactic measure in every primary operation for carcinoma of the breast. If the parasternal glands are not infected at the time of operation the radium treatment is superfluous; if the carcinoma has already reached the mediastinal glands, it is inadequate. If, however, the infection has reached these glands and not yet gone further, Mr. Handley believes that the use of radium will materially improve the patient's prospects, and claims that he has himself had better results since he adopted this procedure. He has also proved microscopically that destruction of carcinoma in a parasternal gland can be produced by radium. In only a single instance in the series did recurrence of carcinoma take place in an intercostal space which had been thus "protected" by radium. It is urged that this prophylactic treatment ought to be used as a routine with operations for carcinoma of the breast.

[1] Surgery, Gynecology, and Obstetrics, December, 1927, p. 721.

PENETRATION OF DAYLIGHT INTO BUILDINGS.

FROM the point of view of school-children and from that of clerical workers this is a matter of primary importance in relation to eyesight. A brochure issued by the Department of Scientific and Industrial Research [2] is an attempt to put the subject on a scientific footing. Weather conditions in this country are so variable that it is of little use to attempt to estimate the amount of daylight which is likely to enter a room through the window. What can be done is to define for any given spot in a given room approximately what proportion of the light that enters the room through the window is available at that particular spot. For this purpose certain technical terms are used. The "sill ratio" is the percentage of the illumination of a horizontal surface placed on the window-sill of the room, all external buildings or other obstruction being supposed removed that falls on any particular surface. The "grumble point" is what is found by experience to be the minimum tolerable value of sill ratio. The "no sky contour" marks off that portion of a room from which the direct view of the sky is visible from that from which it is not. For estimating these matters several more or less arbitrary assumptions have to be made. The amount of light reflected from the sky is an "average" amount. Average weather is taken to be weather in which the illumination of a horizontal card on an unobstructed window-sill is 250 foot candles. Since in towns there is always some obstruction the value of the light reflected from dull surfaces and whitewashed surfaces respectively has to be estimated. It is said that a sill ratio of 0·4 per cent., equivalent to 1 foot candle, is just tolerable. In the elementary schools that have been approved no desk is placed

[2] Penetration of Daylight and Sunlight into Buildings, Department of Scientific and Industrial Research, Illumination Research Technical Paper No. 7. H.M. Stationery Office. 1s.

in a less favourable position than one having a sill ratio of 1 per cent., or 2½ foot candles. Whether or not from a position in the room there is any direct view of the sky is a specially important point. Otherwise the other conditions have to be specially favourable for the lighting to be considered adequate. Architects and others will do well to study this subject, and it is well that some sort of quantitative estimation of lighting should be undertaken for their benefit, but they must bear in mind that a standard which for the normal-sighted is just tolerable, for the weak-sighted would be intolerable. A point well brought out in the brochure is the comparatively low value of the light reflected from the walls, roofs, &c., that obstruct a direct view of the sky. We have here, in fact, something like a scientific justification of the legal doctrine of "ancient lights."

REFECTION.

A REMARKABLE phenomenon has been observed independently by L. S. Fridericia[1] and his coworkers at the University Institute of Hygiene, Copenhagen, and by H. Chick and M. H. Roscoe[2] at the Lister Institute. Both these sets of workers, when experimenting with rats on diets deficient in vitamin B, found that in certain circumstances the animals began to pass large white fæces, and that when this occurred all symptoms of vitamin B deficiency were suppressed, and the rats throve and grew indefinitely; whilst animals which did not form the white fæces declined and succumbed to the deficiency in the ordinary way. Fridericia has given to this phenomenon the convenient name of "refection," and has made a very considerable study of it; the investigations of Roscoe are not so extensive, but she confirms Fridericia in a great many points and extends his observations in a few important ones. Fridericia found that the phenomenon of refection only made its appearance in a few of the rats when a number were placed on the deficient diet, but that if the white fæces from the spontaneously refected rats were fed for a few days to others on the deficient diet these latter also became refected and might remain so indefinitely; any refected rats might, on the other hand, temporarily or permanently relapse. The fæces retained the power of inducing refection when kept in the dry state for at least 5½ months. The agent, or, as Fridericia calls it, the virus of refection, would not pass the pores of a Berkefeld or of a Chamberland filter; it was destroyed when heated to 100° C. for 10 minutes, but not when heated to 80° C. for 10 minutes. The white colour of the fæces was found to be due to undigested starch, but they did not include the whole of the ingested starch, some of which was digested. The starch grains were found to be resistant to the amylase which is present in the fæces, but this amylase was able to digest ordinary starch grains, and it seems that something was adsorbed upon the starch grains which protected them from the action of the amylase; the protective agent was soluble in acid alcohol. The white fæces contained considerable amounts of vitamin B, in contrast with brown fæces which contained little or none. When rats showing refection were fed on a diet containing vitamin B, the failure to digest the starch disappeared, and it was impossible to induce refection in rats on a complete diet by adding white fæces from refected rats to their food. When carbohydrate other than starch was given to rats already refected, a decline in weight began at once, but seemed to go on more slowly than if the rat had never been refected. Fridericia advances no definite theory, but he evidently believes that vitamin B is produced in the intestinal tract of rats by the growth of a virus other than an ordinary intestinal denizen, and that the presence of undigested starch grains in the fæces is a necessary concomitant. As to the function of the starch, he hazards no conjecture.

Roscoe confirms Fridericia in his main argument, agreeing that the condition occurs spontaneously in a few only of the rats on the deficient diet, that it can be transferred to other rats by feeding them on the white fæces, and that undigested starch is present in the fæces, causing the white colour. But she clearly shows what is only inherent in Fridericia's work—that refection replaces either or both parts of the vitamin B complex in the deficient diet. This is important, as it is hardly possible to imagine that both parts of vitamin B, in the absence of which neuritic and pellagra-like symptoms develop, can be dispensed with from the diet in any other way than by the formation of these two parts by some organism in the intestine, a view which is particularly supported by Fridericia's observation that there is more vitamin B in the white fæces than in the dark ones. Unlike Fridericia, Roscoe was able to observe refection in rats which were receiving both fractions of vitamin B, and when the fractions were withdrawn the rats, being refected, remained in health. She also noticed that refected rats, when caged upon wire grids of very wide mesh, so that the fæces fell through the moment that they were passed, ceased to be refected and might die or might recover again. As it was seen that rats could actually learn to catch their fæces the moment they were passed and consume them, it was concluded that coprophagy was necessary to the continued maintenance of refection. She found that refection was impossible if there was no starch in the diet, and that it was absolutely prevented if the starch was first cooked, so that every starch grain was thereby burst.

The connexion of the condition with the presence of unbroken starch grains is thus confirmed by Roscoe's work, though she too offers no explanation of the connexion. Her results are not incompatible with a conjecture that the persistence of the unbroken starch grains is in some way conditioned by the growth of an organism which generates vitamin B in the intestinal tract, but if that is so it is not clear why refection does not always occur. Possibly only some kinds of starch are suitable or only some carry the "virus." Both Roscoe and Fridericia used rice starch only, but it is of interest to note that C. Eijkman[3] many years ago found that potato starch had some special action in preventing the outbreak of polyneuritis among pigeons where other kinds of starch had no such action. Also M. A. Boas[4] has found that arrowroot and potato starches, in contrast with some cereal starches tried, are peculiarly effective in preventing the condition of malnutrition which she has found to develop in rats fed on certain diets containing dried egg-white.

[1] L. S. Fridericia, P. Freudenthal, S. Gudjonsson, G. Johansen, and N. Schoubye: Jour. of Hygiene, 1927, xxvii., 70.
[2] M. H. Roscoe: Ibid., p. 103.
[3] C. Eijkman: Virchows Archiv, 1897, cxlviii., 523.
[4] M. A. Boas: Biochem. Jour., 1927, xxi., 712.

AN INTERNATIONAL COURSE IN PUBLIC HEALTH.

THE continuation course in public health, which came to an end just before Christmas, was an unqualified success, and the Health Section of the League of Nations may congratulate itself on having made a practical contribution to the health of nations. Delegates came to London from Brazil, the Crown Colonies, Czecho-Slovakia, France, Germany, Hungary, Iceland, Northern Ireland, the Irish Free State, the Netherlands, Norway, Scotland, Sweden, Switzerland, the United States of America, and Yugoslavia. The inclusion among the delegates of representatives from the British Empire proved of value to both home and foreign participants, permitting as it did a much more free and intimate exchange of views and experiences than would have resulted from formal lectures and discussions. Arrangements were in the hands of the Ministry of Health and of the Society of Medical Officers of Health, and procedure took the form of

lectures by eminent British and foreign authorities on a wide range of public health subjects, of discussions with the speakers, and of individual and collective tours of inspection to institutions or works of hygienic interest.

Sir George Newman's introductory lecture demonstrated the antiquity of British public health administration, founded upon the roads and baths of the Roman occupation, the Domesday Book and the Gilds, science and social reform combining to produce administrative action. A comprehensive review of national health insurance schemes in Europe, given by Dr. A. Foramitti (Austria), showed how efficiency in public health administration connotes efficiency in health insurance work. Dr. J. Smith Whitaker, on the other hand, attributed to the general practitioner the success of the British scheme, stimulated indirectly only by public health machinery. Industrial hygiene was dealt with by Prof. G. Y. Giglioli (Florence) and Dr. J. J. Buchan (M.O.H., Bradford), the former in a historical review pointing out that the retrograde influence of the Great War was counterbalanced by the introduction of physiological methods, the latter discussing the question of light, ventilation, and temperature in industry in relation to the employer and employee. Dr. T. H. C. Stevenson (General Register Office), in a paper on the national vital statistics of this country, described what may prove to be the first definite clue to the solution of the problem of cancer when he showed that grading in regional sites from the skin to the pylorus indicated that cancer was a social condition. That the recently instituted clean milk competitions had done more to educate the milk industry in the meaning of bacterial purity than have 50 years of inspection was a notable pronouncement of Dr. A. W. J. MacFadden (Ministry of Health) in a detailed discourse on the hygiene of milk. An instructive account of the legislation safeguarding food-supply was given by Dr. C. Porter (M.O.H., Marylebone), his remark that the good food regulations of foreign countries had resulted from British insistence meeting with no criticism from the foreign delegates. Prof. F. Neufeld (Robert Koch Institute, Berlin) described recent research work on tuberculosis and its application. He considered that dried dust was a very much more important means of spread than wet droplets; that bovine bacilli played no rôle in pulmonary tuberculosis; that large doses of bacilli are required to produce the disease, and that a filtrable form of tubercle bacillus was a very unlikely primary organism if it existed at all. Prof. C. Pirquet (Vienna) emphasised the importance of a little surplus of food—his only therapeutic measure—in the treatment of tuberculosis. Sunlight acted merely as an adjuvant in the immunising process by stimulating the appetite. The lectures on immunity and infection by Prof. Carl Browning (Glasgow), Prof. W. W. C. Topley (London School of Hygiene), and Surgeon-Commander S. F. Dudley embraced the problems of fluctuation in virulence and in susceptibility, velocity of infection, and herd immunity. The present position of chemotherapy from the clinical point of view was a subject in which Prof. B. Nocht (Hamburg) provoked deep interest, especially on the part of those interested in tropical medicine. Mr. K. Stouman's (League of Nations) paper on the geographical distribution of epidemic diseases demonstrated the great international importance of the health work of the League. His statement that the world was probably on the verge of an increase in the incidence and virulence of diphtheria received ample support in ensuing days from speakers from different parts of the globe. An honest and clear account of the present position of the problem of nutrition was given by Prof. E. P. Cathcart (Glasgow). In a series of four lectures Prof. Haven Emerson (New York) described the progress and present position of public health administration in America, perhaps one of his most outstanding remarks being that New York had now done all that could be done by isolation, quarantine, and therapeutic measures to counteract diphtheria, and that if a further fall in incidence was desired immunisation of children under one year of age must be undertaken and practised as commonly as small-pox vaccination. Lectures by Sir George Buchanan, Dr. F. G. Boudreau, and Dr. Norman White on the work of the League fittingly concluded the course. Fifty-two lectures in all were delivered, and in a brief résumé such as this it is impossible to do more than single out here and there some of the more salient items. The hope of the participants that the lectures should be reprinted in book form is one which we cordially endorse.

Visits of inspection were paid to the many institutions which make London such a desirable centre for a hygienic survey. The places visited included the Ministry of Health, metropolitan schools, the port sanitary authority, milk-supply depôts, Lord Mayor Treloar's Home for Cripples at Alton, a study of rural hygiene in Bedfordshire under the guidance of Prof. H. R. Kenwood, the Royal Sanitary Institute, the Institute of Tropical Medicine and Hygiene, and the laboratories of the Metropolitan Water Board. The physical and mental fatigue of six weeks' intensive study may have left the foreign participants in the course a little limp, but they were unanimous in recognising the value of the opportunity they had been afforded of getting to know the problems, the shortcomings, and the successes of their colleagues' countries and thus of acquiring a broader outlook on national health.

AN INDIAN REMEDY AGAINST DYSENTERY.

A STUDY of the pharmacological and therapeutic actions of *Holarrhena antidysenterica*, a small deciduous tree widely distributed throughout India and Burma, has recently been undertaken by Rev. Father J. F. Caius and Dr. K. S. Mhaskar, and the results published in an Indian Research Memoir. Since both the bark and the seeds of this plant have been, and continue to be, among the most important medicines of the Hindu materia medica, being used extensively in the treatment of all forms of indigestion, of dysentery, and of disorders of the lungs, there existed a need for an investigation of their biological properties by modern methods of research. This the authors have undertaken with the following result. A 1 : 5 decoction of the powdered seeds was found to have no antiseptic value when tested by its effect on the growth of colon and typhoid bacilli. It produced an increase in the tone of the plain muscle of the gut and uterus of the guinea-pig and rabbit, and the powdered seeds in doses of grs. 15 to 60 a day led to a definite clinical improvement in 57 per cent. of the cases of amœbic dysentery, in 22 per cent. of the cases of non-amœbic dysentery, and in 61 per cent. of the cases of non-dysenteric diarrhœa investigated. The seeds contained a relatively high percentage of oil, but the pharmacological agent responsible for the effects observed was not concentrated in this oil. The bark was next subjected to experiment with the result that decoctions of this were found to give pharmacological and therapeutic reactions essentially similar to those produced by decoctions of the seeds of the plant. The bark constitutes the principal medicine for dysentery in the Indian Pharmacopœia, and Indian writers are unanimous in recommending this drug. "Accordingly," it is stated, "the Indigenous Drugs Committee decided to determine the place of the bark of *Holarrhena antidysenterica* in the treatment of dysentery . . . 30 patients were treated, of whom 26 were either cured or improved." Results almost as satisfactory as these were obtained by the authors, in that 51 out of 67 cases of amœbic dysentery, 37 out of 55 cases of non-amœbic, and 9 out of 20 cases of non-dysenteric diarrhœa were definitely improved. It will be observed that these results are somewhat better than those obtained from the use of the powdered seeds, and in this connexion it is to be noticed that the authors found a much larger amount of the alkaloid conessine in

the bark than in the seeds of holarrhena. This alkaloid was extracted from the bark and its pharmacological action investigated. The results confirm on the whole those of previous workers, and the drug was found to be effective in some cases of dysentery. The question arose as to whether this alkaloid was the essential agent in producing the good resulting from the treatment of dysentery by the bark and seeds of the plant. It has been shown recently by R. N. Chopra, J. C. Gupta, J. C. David, and S. Ghosh that conessine has a specific action on *Entamœba histolytica* obtained from the stools of infected kittens, being even more active in killing this parasite than is emetine. Although we must assume that the alkaloid is largely responsible for the beneficial effects of the crude drug, yet the results of Caius and Mhaskar show that the effects of administration of the seeds or bark to cases of dysentery are not entirely explicable on this hypothesis, since "the smallest therapeutic dose of free alkaloid is quite out of proportion to the amount of combined alkaloid present in the optimum doses of either the seed or the bark—30 to 1 in the case of the seed and 2 to 1 in that of the bark." The conclusions arrived at by the authors as the result of their study are that the antidysenteric value of holarrhena compares favourably with that of any of the medicines now in vogue, that its antidiarrhœal properties are not dependent on one chemical constituent in particular but on the entire seed or bark, and that it affords a safe, cheap, reliable, and easily administered drug for the treatment of diarrhœal troubles. They recommend the daily administration of grs. 60–120 of the powdered bark in three to four portions. Results of real value to medicine are likely to accrue from studies of Indian medicinal plants such as those undertaken by the authors of this memoir, and the Indian Government may be congratulated on initiating such a line of research.

THE SNOW.

THE snow has come and gone, at all events in southern England, leaving a tale of hardship and adventure which will take the place for the present generation of the great snowstorm of 1881 for the past. Snow fell on Christmas evening in no very remarkable quantity, for nowhere was there an average of more than a level foot in depth—equivalent as everyone knows to an inch of rain—but the continuous gale from Nova Zembla or thereabouts gave no peace to the falling flakes which drifted before it until they could find rest in some hollow or other, whether railway-cutting, country lane, or domestic backyard. Our legal correspondent has dealt elsewhere with the mischief produced on the public highway; it is the domestic aspect with which we are here concerned. Falling snow offers a very convenient dumping-ground for things which one wants to be rid of, and it attracts tenants of the poorer types of house to throw into it rubbish which should go into the dustbins. Even on roads which are normally free from rubbish the snow soon becomes foul, while stall-holders in open markets frankly regard the snow as a pretext for being more than ordinarily careless with their trade refuse. Anyone who has seen the backyards of a snowbound village thaw out in the spring will realise that they tell a fairly accurate story of the habits of the local housewife, and, as the larder is rightly placed on the sunless aspect of the house, it is in its immediate proximity that the snow persists longest and the accumulation of dirt and unconsidered trifles is most conspicuous. Street hygiene did not suffer in London itself as much as might have been expected. Surveyors were careful, while snow was still falling, not only to clear a central passage for traffic, but also to keep the gutters clear, and the removal of house refuse was affected only to a limited extent. In many London areas motor vehicles are used for its removal and the difficulty is thereby reduced to a minimum. The effect on the general street cleansing is that the removal of snow replaces the more ordinary street sweeping, and in London the duty of clearing both carriageways and footways devolves on the local authority. When rock salt is used to facilitate the clearing as little as possible is applied, and the roads are washed by means of hose and water vans as soon as the thaw sets in. Local Government Board by-laws of 1877 provide that where salt is used for the purpose of facilitating the removal of any snow from any footway or pavement, the whole of the deposit resulting from the mixture shall forthwith be effectively removed. The effect of a temporary suspension of street cleansing would not appear to have any serious consequence, except that the presence of litter and refuse in the streets is unattractive. During the war in a central London borough with much vehicular traffic, the street-cleansing staff refused service for a period of three or four weeks during which very little cleansing of the thoroughfares could be effected. Efforts were, of course, made to secure temporary labour; volunteer women were employed and even the borough surveyor took a turn with the broom; but these efforts were comparatively small in their effect, and the refuse was left more or less undisturbed through the strike period, yet no ill-effect on health is known to have occurred.

SMOKING AND THE STOMACH.

THE latest reflections on tobacco-smoking may be found on p. 14 of our present issue, where Prof. Hugh MacLean and his colleagues suggest that "the profession as a whole hardly realises the excessively detrimental action of tobacco on the deranged stomach." Their belief in its evil effects, though presumably based on clinical observation, can find a good deal of support in the records of experiment. In a recent lecture [1] Prof. W. E. Dixon, after remarking that the commonest symptoms of smoking are loss of appetite and chronic intestinal catarrh, said that "nicotine and tobacco-smoking, by stimulating the autonomic ganglia, increase the secretion of the alimentary glands and later, after the smoking has ceased, depress them." Injections of saline through which smoke has been passed produce in dogs a decided increase in the flow of gastric juice, and "it is well recognised that in certain persons excessive smoking leads to this gastric hypersecretion." Prof. Dixon quotes F. Wagner as insisting that excessive smoking can produce all the subjective and radiographic appearances of duodenal ulcer, but Sir Humphry Rolleston [2] says that this tobacco dyspepsia is rather rare, being attributable probably to pyloric spasm. He points out, however, that with oral sepsis excessive salivation due to smoking may set up gastritis, and states that after a short period of increased contractility the stomach becomes paralysed under the influence of tobacco, the paralysis lasting perhaps an hour. Though these facts lend force to Prof. MacLean's plea that smoking should be forbidden to patients whose stomachs are struggling back to health, it remains uncertain whether tobacco plays an important part among the processes which cause gastric ulcers and neuroses. That it does so has often been asserted, and its action is invoked to explain the greater incidence of ulcer in men than women. The hypothesis is (to smokers) unattractive, and is fortunately not supported by the results of a small statistical study [3] that Dr. C. W. Barnett has been making at the Peter Brent Brigham Hospital in Boston. From their case-histories Dr. Barnett classified into smokers and non-smokers all the male patients with gastric or duodenal ulcer or gastric neuroses treated at the hospital from 1913 to 1926. In all there were 312 cases with a complete history, and for comparison 500 patients of similar age were selected from the general admissions. No difference

[1] THE LANCET, 1927, ii., 881.
[2] THE LANCET, 1926, i., 961.
[3] Boston Medical and Surgical Journal, 1927, cxcvii., 457.

of any importance was found between the proportion of smokers among the cases of peptic ulcer or gastric neurosis and among the controls, nor was the mean age of admission of the cases of gastric or duodenal ulcer different among the smokers or non-smokers. From this evidence, then, so far as it goes, no case against smoking can be made out. Clearly, however, the evidence does not go very far, and as Dr. Barnett points out, nothing was known about the *amount* of smoking, and the possibility of excessive smoking leading in some cases to peptic ulcer is not precluded, though not indicated by his investigation. Now that tobacco is taking the place of alcohol as the popular drug of addiction it has become very important to know the truth about these matters.

VLADIMIR BECHTEREV.

THE death on Christmas Day of Vladimir Mikhailovich von Bechterev in his seventy-third year should not remain unnoticed, for he occupied for many years the chair of psychiatry and nervous diseases at St. Petersburg, and his many contributions to neurology and anatomy are lasting witness to his scientific foresight and painstaking thoroughness. His name is specially associated with the pioneer experiments with cerebellar stimulations that first opened up an avenue of exploration along which modern investigators are still travelling. He was among the first to suggest an anatomical representation within the cerebellum of the body segments. His anatomical researches on the peripheral and central connexions of the acoustic nerve are equally familiar. In 1884 Bechterev, in the course of his experimental work, observed forced movements resulting from stimulation of the base of the forebrain in animals, suggesting to him the possibility of vestibular centres in this region. The following year he determined, with Flechsig, the peripheral distribution of the roots of the acoustic nerve; a year later he and Edinger, working independently along embryological lines, demonstrated the central terminations of this nerve. Bechterev contended that the anterior root of the vestibular nerve does not arise from the dorsal nucleus, but rather from cells situated in the vicinity of Deiter's nucleus—and in fact the nucleus angularis still bears his name. Other anatomical researches which are associated with him include the demonstration of the central tegmental tract, which descends in the neighbourhood of the inferior olive, and the line of Kaes and Bechterev, which forms part of the supraradiary zone of the cortex. Clinical neurology also is the richer for his work, and to-day the nasal reflex and the reflex of the dorsum of the foot are still coupled with his name. In 1893 he described, as a variety of chronic rigidity of the spine, a condition of vertebral ankylosis with root signs, of heredo-traumatic origin—a syndrome known to medical dictionaries as Bechterev's disease. Bechterev was born at Vyatka on the slope of the Ural Mountains, and although he studied for periods at Leipzig and Paris he spent the whole of his active life in Russia. To posterity his name will certainly rank with those of Ferrier and Hitzig as a pioneer of experimental neurophysiology.

INDEX TO "THE LANCET," VOL. II., 1927.

THE Index and Title-page to Vol. II., 1927, which was completed with the issue of Dec. 31st, is now in preparation. A copy will be sent gratis to subscribers on receipt of a post-card addressed to the Manager of THE LANCET, 1, Bedford-street, Strand, W.C. 2. Subscribers who have not already indicated their desire to receive Indexes regularly as published should do so now.

HARVEIAN SOCIETY.—The annual general meeting of this society will be held on Thursday, Jan. 12th, at 8.30 P.M., at 11, Chandos-street, London, W.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Lt.-Comdr. H. F. Stephen to be Surg. Comdr.

Surg. Lt.-Comdrs.: F. G. Hunt to *Tamar* for Hong-Kong Dockyard; and F. H. Vey to *Victory* for Portsmouth Dockyard.

Surg. Lts.: D. Duncan to *Vernon*; J. H. Nicolson to *Tiger*, temp., and to *Cornwall* (on commg. with full complement); and S. G. Weldon to *Alecto*, temp.

Surg. Lt. (D.): A. W. Wallace to *Victory* for R.N. Barracks, Portsmouth, temp.

ROYAL NAVAL VOLUNTEER RESERVE.

Surg. Comdr. H. L. Murray to be Surg. Capt.

Surg. Sub-Lt. T. A. Brand to be Surg. Lt.

ROYAL ARMY MEDICAL CORPS.

Lt.-Col. C. R. Sylvester-Bradley is placed on the half-pay list on account of ill-health.

Maj. and Bt. Lt.-Col. G. De la Cour, from a Professor, Royal Army Medical College, is granted the rank of Temp. Col. whilst empld. as Consulting Surgeon to the British Army.

Col. R. H. Lloyd, late R.A.M.C., is placed on half pay.

Lt.-Cols., from R.A.M.C., to be Cols.: E. McDonnell and Bt. Cols. A. H. Safford and J. W. West.

Cols., late R.A.M.C., retiring on retd. pay: G. M. Goldsmith and H. D. Packer.

Col. H. H. S. Morant, having attained the age for compulsory retirement, is placed on retd. pay and is granted the hon. rank of Brig.-Gen.

Lt.-Col. A. McMunn, having attained the age fixed for compulsory retirement, retires on retd. pay.

Majs. to be Lt.-Cols.: N. Low, A. N. Fraser, and R. H. L. Cordner.

Capt. G. T. Gimlette to be Maj. (Prov.).

Temp. Lt. O. A. Owen-Flood (Lt., Reg. Army Res. of Off., R. Ir. Fus.) relinquishes his temp. commn.

ARMY DENTAL CORPS.

Capt. H. H. Mallet to be Maj.

The undermentioned to be Lts. on prob.: N. I. Macmillan, W. P. Baxendine, A. K. Inglis, W. McD. Birse, and R. G. J. Tovey.

TERRITORIAL ARMY.

F. MacD. Walker to be Lt.

Hygiene Companies: Lt. C. M. Willcox, late R.F.A. (Spec. Res.), to be Lt.

ROYAL AIR FORCE.

Half-yearly Promotions: Wing Comdr. E. C. Clements to be Group Capt. Flight Lt. (Acting Squadron Leader) J. N. MacDonald to be Hon. Wing Comdr.

INDIAN MEDICAL SERVICES.

Capt. E. Kean resigns his commn.

Temp. Capt. C. L. Katial relinquishes his temp. commn.

Lt.-Col. W. H. C. Forster has been appointed Inspector-General of Civil Hospitals, Burma. Dr. E. Heath is to act as Lady Inspector of Factories. Dr. Fred Barretto has been confirmed as Officer in Charge, Public Health Laboratory, Poona. The services of Lt.-Col. G. W. Maconachie have been placed at the disposal of the Government of India for appointment as Inspector-General of Prisons, Bihar and Orissa. Lt.-Col. F. Stevenson has been posted as Residency Surgeon, Kashmir. Lt.-Col. A. Cameron, civil surg., has been posted to Agra; Lt.-Col. J. F. Boyd, civil surg., to Aligarh; Maj. G. T. Burke, civil surg., to Jhansi; Maj. E. G. A. Mathews, civil surg., from Aligarh to Hardoi; Dr. Gauri Nath, officiating civil surg., from Hardoi to Ballia; and Dr. Har Prasad Bajpai, officiating civil surg., from Jhansi to Hamirpur. Lt.-Col. W. A. Mearns is to resume the duties of Assistant Director of Public Health; Lt.-Col. J. Anderson has been posted as Civil Surg., Sibi. Dr. M. V. Webb, Principal, Women's Medical School, Agra, and Acting Senior Medical Officer, Women's Medical Service, and Secretary, Dufferin's Council, Countess of Dufferin's Fund, has made over charge of the office of the latter to Dr. A. C. Scott.

The Secretary of State for India has approved the grant of vacant Good Service Pensions to Lt.-Cols. W. Coates, I.M.S., retd., and C. J. McCartie, I.M.S., retd.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCLVII.—TREATMENT OF ILEUS FOLLOWING OPERATIONS.

ILEUS or intestinal obstruction secondary to operation may be of two types—paralytic, when it results from failure of peristaltic action, and mechanical when it is due to some organic block of the bowel.

Paralytic Ileus.—In this variety there is paralysis of some portion of the intestine and the effect may be transitory. Such ileus may follow the reposition of large strangulated herniæ, but the most important cause of all is acute peritonitis either localised or diffuse. In this condition the intestine becomes inflamed and is unable to propel its contents.

In *mechanical ileus* the intestine may be strangulated or kinked by bands or cords, the result of peritoneal adhesions following operation, or a tear in the omentum or mesentery made by operative trauma may lead to intestinal obstruction. Ileus may also be produced as the result of cicatricial contracture affecting the wall of the bowel following an artificially made anastomosis.

Mortality.

The mortality from acute intestinal obstruction has fallen very little during recent years. The death-rate after operation in early cases is not less than 20 per cent., whilst in any large collection of cases it may reach 50 per cent. It seems to be generally agreed that the high and rapid mortality in obstruction of the small intestine is due to the absorption of toxic material developed within the bowel. Evacuation of the bowel contents is therefore of first importance, but restoration of peristalsis is also essential for recovery. If the bowels can be made to act the patient frequently recovers, whilst if they fail to act, he will die. In the late stages of fatal cases of acute peritonitis paralytic obstruction develops and this is largely responsible for the symptoms of toxæmia. The most common cause of peritonitis met with by the general surgeon is acute appendicitis. Of cases dying of peritonitis 5–10 days after operation for appendicitis probably 75 per cent. are due to intestinal obstruction, which is a most difficult and dangerous complication. If intestinal obstruction does not supervene peritonitis often yields to treatment.

The treatment of paralytic ileus has always been unsatisfactory. The efficacy of drugs such as castor oil, calomel, eserine, or pituitary extract depends on contraction of the bowel. If the bowel is paralysed these drugs will fail to act and will add to the strain on a heart already damaged by toxæmia. Enterostomy in the paralysed bowel in such cases only drains the affected loop, and therefore is of but limited value. It is, therefore, apparent that in cases of paralytic ileus attempts to stimulate peristalsis in the bowel should be avoided. The most effective measure is to give it complete rest, and thereby a chance to recover its power of active contraction. This treatment, combined with an enterostomy above the affected portion of the bowel, does undoubtedly prove successful in many cases. Enterostomy is an easy and quick operation and makes little demands on the patient's vitality. In addition, glucose and sodium bicarbonate can be run into the bowel and is absorbed better than from the rectum or elsewhere. The toxins are thus diluted, and this process is of distinct advantage to the patient.

Clinical Features.

Post-operative ileus is usually seen at two periods after operation—early, within the first two or three days, or later during the convalescent period. The treatment to be adopted will depend on the stage at which the condition arises. The management of early cases arising after operations for peritonitis due to acute appendicitis presents a most anxious and difficult problem. These cases are usually due to multiple kinking of inflamed bowel by plastic lymph. This condition chiefly affects the lower ileum, having been set up by perforation of a gangrenous appendix. The bowel becomes acutely inflamed and then paralysed by extension of the inflammation to the muscular wall. Death in these cases is due to intestinal obstruction and not to peritonitis. The clinical picture is fairly typical. The patient shows little or no improvement after operation, and the abdominal distension becomes more marked; vomiting is progressive and enemas produce no satisfactory result. About the fourth or fifth day after the operation the signs of intestinal obstruction become well marked and further operation is then essential.

Enterostomy.

When obstruction develops shortly after operation it is rarely complete and the intestine will not infrequently recover its function if given a reasonable chance. In these cases all nourishment by mouth must be entirely stopped so as to avoid further overloading of a distended bowel. Fluids should be given freely by the rectal and subcutaneous routes. Where vomiting is troublesome gastric lavage is valuable, and can be repeated as often as necessary. Morphine in doses of gr. 1/6 gives relief from pain, and in spite of apparent contra-indications will be found useful.

If improvement does not follow this treatment in about 48 hours operation will be necessary. This involves drainage of the small intestine by an enterostomy above the site of obstruction and above the level at which the bowel is paralysed. It is an extremely easy procedure and should be carried out by the following method.

Technique.—A local anæsthetic (2 per cent. of novocaine) is used. A left paramedian or rectus splitting incision just above the umbilicus is made, and the first distended loop of intestine that presents is withdrawn into the wound. This is clamped after it has been emptied, and a tube or large catheter with a terminal opening is sutured into the bowel by Witzel's method. According to this method the tube is laid for 3 or 4 inches along the bowel, and the serous and muscular coats sutured over it. The tube is then brought out through a gap in the omentum and the wound closed round it. This enterostomy of the valvular type will close when the tube is removed without the necessity of a second operation. The intestine will empty itself of its toxic contents through the enterostomy, and irrigation with sodium bicarbonate can also be carried out.

This is the easiest and safest procedure to adopt when the patient is in a poor condition. It is often a life-saving measure and will tide the patient over an apparently hopeless condition. After the intestine has emptied itself through the tube the lumen of the bowel is usually restored and the contents begin to pass normally. The tube can then be removed and the fistula will close spontaneously.

Ileus Duplex.

Sampson Handley has described under the name of ileus duplex a condition where there is paralysis of the bowel below the level of the pelvic brim—that is, in the lower coils of the ileum and the terminal portion of the colon. He recommends as treatment for this condition short-circuiting of the ileum by a jejuno-colostomy with drainage of the large bowel by a cæcostomy. This operation would appear rather severe in a patient whose condition is desperate. Enterostomy is a quicker and simpler operation and can readily be performed by any surgeon with far less strain on the patient.

Mechanical Ileus.

Patients may develop symptoms of intestinal obstruction any time after the tenth day following operation. At this period the obstruction is due to fixation of the bowel by adhesions, and an operation to separate the adhesions and free the bowel will always be necessary. If it is thought desirable, an

enterostomy may be added to drain the bowel for a few days. The outlook in such cases is fairly good provided that operation has not been unduly delayed.

Anti-gas Serum.—It has been suggested that the severe toxæmia of acute ileus is due to the presence of the toxins of the *B. welchii* in the fæcal contents of the bowel above the site of obstruction, the absorption of this toxin by the damaged mucosa leading to the grave general condition of the patient. The symptoms certainly resemble those seen in cases of gas gangrene. The natural outcome of this suggestion was the administration of anti-gas serum to patients, and this has been tried by B. W. Williams[1] during the past two years with encouraging results and noteworthy reduction in the mortality-rate. A prophylactic injection of serum before operation may lead to still better results. The initial dose of serum should be 80 c.cm. given intramuscularly, and later 40–80 c.cm. should be given daily intramuscularly until the bowels are acting effectually.

Administration of Bile.—More recently R. St. L. Brockman[2] has suggested that the symptoms which develop in cases of intestinal obstruction are for the most part due to the prevention of the passage of the bile along the alimentary canal. The administration of bile by the rectum has given encouraging results, the vomiting and toxæmia being diminished in some cases. The dose given was human bile 2 oz. in 4 oz. saline per rectum every four hours and relief was almost immediate. The toxic symptoms may be further controlled by the use of hypertonic saline given intravenously. A quart of 3 per cent. saline given before and again after operation gives favourable results.

Spinal Anæsthesia.—Spinal anæsthesia may be regarded as a valuable alternative to general anæsthesia in cases of intestinal obstruction. This anæsthetic gives perfect relaxation and allows manipulation of the distended coils of bowel to be carried out with great ease. Not infrequently, after the injection of a spinal anæsthetic, the bowels act spontaneously on the operating table, and such injections have been suggested as a line of treatment in cases of paralytic ileus.

Preventive Treatment.

With the practice of earlier operation for acute appendicitis the number of cases where post-operative ileus arises is likely to decrease. This probability is sufficient reason for immediate operation in acute appendicitis as soon as the diagnosis is clear. If the appendix can be removed before it has perforated ileus will not arise. The avoidance of a drainage-tube is an important factor in preventing the formation of post-operative adhesions, for intestinal obstruction is far more common when a drainage-tube has been used. In some cases of acute appendicitis the presence of ileus may be recognised before or actually at the time of operation, and for this reason an adequate incision is necessary to enable the lower ileum to be inspected. For this purpose either the paramedian or the Battle incision is to be recommended. After the appendix has been dealt with the condition of the ileum is examined. If it is fixed by recent adhesions it is gently freed and its mobility restored. Where the gut appears inflamed, sodden and apparently paralysed, either an enterostomy or ileo-colostomy and cæcostomy as advised by Handley should be performed. The early administration of purgatives should be avoided after operation for acute appendicitis. In the treatment of strangulated intestine following hernia operations, a lateral anastomosis to short-circuit the damaged loop is often a valuable procedure where the condition of the bowel is doubtful. Finally, a further cause of ileus after abdominal operation is the over-purgation of patients prior to operation, and the use of castor oil, which causes severe intestinal irritation, should be avoided.

A. H. SOUTHAM, M.D., M.Ch. Oxf., F.R.C.S. Eng.,
Hon. Assistant Surgeon, Salford Royal Hospital; Assistant Surgical Officer, Manchester Royal Infirmary; Lecturer in Operative Surgery, Manchester University.

[1] THE LANCET, 1927, i., 907.
[2] Ibid., 1927, ii., 317.

Special Articles.

OBSERVATIONS CONCERNING THE PRESERVATION OF LIFE IN SHIPWRECKED INDIVIDUALS.

BY J. ARGYLL CAMPBELL, M.D., D.Sc. EDIN.,
AND
LEONARD HILL, M.B. LOND., F.R.S.
(*From the National Institute for Medical Research.*)

A FEW years ago (1923)[1] we advised the wearing of thin mackintosh or rubber "overalls" for shipwrecked individuals, to keep out wind and water whilst sitting on rafts or in lifeboats, and thus prevent excessive loss of body heat by chilling. As a consequence of our observations special rubber "overalls" have been designed for this purpose, and we have employed the suit termed the "warmalonga"[2] in some further experiments. This suit is complete in one piece, and may be readily slipped on and fixed in position. It is not absolutely water-tight, since it has four openings near the feet and wrists to allow water to escape readily, and thus prevent over-cooling of the feet and arms whilst sitting on a raft or in a lifeboat after immersion in the sea. This suit is probably ideal for a person sitting on a raft or in a lifeboat and exposed to wind and splashings. Our present observations were undertaken to determine whether such a non-water-tight suit possesses any advantage towards preserving body heat over ordinary warm woollen clothing when the subject is wholly immersed in water. Our results indicate that such a non-water-tight rubber suit is not obviously superior to ordinary warm clothing for preservation of body heat when the subject is fully immersed in water.

The Plan of Research.

Our plan of research was as follows. The subject, a diver of experience, sat quietly on a chair for about 20 minutes wearing ordinary clothes or special clothes for the experiment. At the end of 20 minutes his heat loss was estimated, usually over a period of 10 minutes, from the oxygen consumption determined by Douglas and Haldane's technique, as recommended by Cathcart.[3] These results formed the base-line for comparison of the effects of immersion in a bath under different conditions as regards clothing. The temperature of the bath was kept at about 22–23° C. The subject lay as quietly as possible in the bath, any movement being due to shivering and quite involuntary. Two experiments (1 and 2) were carried out in which the subject was naked in the bath. In from five to ten minutes he was shivering so badly that the experiment was terminated. Of course, had he been allowed to move—e.g., make swimming movements—he would not have shivered so soon nor so violently. The shivering caused an average increase in oxygen consumption of over 150 per cent., and was accompanied by heat loss of over 160 per cent. (see table). In the next experiment (3) he wore ordinary clothing whilst lying in the water for ten minutes, and the clothes markedly reduced the heat loss due to cooling by the water. Now the increase in heat loss due to ten minutes immersion was only 57 per cent. instead of over 150 per cent. for a shorter period when naked. In Expt. 4, in addition to ordinary clothing, he wore also the rubber suit whilst in the water. Here, again, the clothes protected to a considerable extent, the increase in heat loss due to the water being only about

[1] Medical Research Council Special Report Series, No. 73, p. 179.
[2] Made by Messrs. Siebe Gorman, Westminster Bridge-road, London.
[3] Jour. Roy. Army Med. Corps, 1918, xxxi., 339.

65 per cent. during ten minutes, as compared with 150 per cent. when naked. It will be noted, however, that the addition of the non-water-tight rubber suit did not prevent loss of body heat any more effectively than did ordinary clothing alone, because the water had entered the rubber suit, through the openings at the feet, and replaced the air inside; this occurred soon after the subject entered the water and was facilitated by an assistant pressing on the suit so that the subject sank in the water in the bath.

Various other arrangements of clothing were tested, including the very thick woollen jerseys, long pants, and stockings as used by divers; sometimes two sets of such garments were worn. In these experiments (5 to 13) the subject lay quietly in the bath for about 20 minutes and could have remained longer. Usually he shivered about four minutes after entering the water, but this shivering lasted only a few minutes and was not violent. The heat loss was estimated during the last eight to ten minutes of immersion—

Expt. No.	Collection of expired air. Time A.M.	Temp. °C.		Pulse.	Respiratory quotient.	O_2 c.cm. per min.	O_2 difference due to bath.		Heat loss.			Remarks *re* clothing, &c.
		Room.	Bath.				C.cm.	Per cent.	Calories per min.	Difference due to bath. Calories per min.	Difference due to bath. Per cent.	
1	11.21 to 11.31	20·0	—	76	0·685	243	—	—	1·14	—	—	Sitting on chair; ordinary light clothing—i.e., woollen undervest and pants, cotton shirt, wool socks, white flannel trousers, and blue serge coat and waistcoat.
	11·45 to 11·52	20·0	23·0	—	0·790	654	+411	+169	3·13	+1·99	+174	Naked in bath for 11 mins.; excessive shivering and discomfort.
2	11.30 to 11.40	18·5	—	74	0·716	306	—	—	1·43	—	—	Sitting on chair; ordinary light clothing as in Expt. 1.
	11.50 to 11.55	18·5	23·0	—	0·895	749	+443	+144	3·68	+2·25	+157	Naked in bath for 8 mins.; excessive shivering and discomfort.
3	11.53 to 12.5	19·0	—	72	0·786	345	—	—	1·65	—	—	Sitting on chair; ordinary light clothing as in Expt. 1.
	12.15 to 12.25	19·0	22·5	87	0·752	547	+202	+58	2·59	+0·94	+57	Lying in bath for 10 mins. in same clothes as above.
4	11.36 to 11.47½	20·5	—	80	0·926	313	—	—	1·55	—	—	Sitting on chair; ordinary light clothing as in Expt. 1, plus rubber suit.
	12.1 to 12.10	20·5	23·0	72	0·835	528	+215	+68	2·56	+1·01	+65	Lying in bath for 10 mins. in same clothes and rubber suit as above.
5	12.10 to 12.20	18·0	—	80	0·763	292	—	—	1·39	—	—	Sitting on chair; ordinary light clothing, plus rubber suit, as in Expt. 4.
	12.32 to 12.42	18·0	22·5	80	0·777	512	+220	+75	2·44	+1·05	+75	Lying in bath for 20 mins. in same clothes and rubber suit as above; temp. inside rubber suit 24–25°C. Shivering after 4 mins., but stopped in another 4 mins.
6	11.50 to 12.0	18·0	—	84	0·800	307	—	—	1·47	—	—	Sitting on chair; same clothes, &c., as in Expt. 5.
	12.10 to 12.19	18·0	22·0	93	0·868	655	+348	+113	3·20	+1·73	+117	Lying in bath for 18 mins. in same clothes as above; shivering after 3½ mins.
7	12.18 to 12.28	21·0	—	72	0·700	275	—	—	1·28	—	—	Sitting on chair; same clothes as in Expt. 1, except no coat; wearing also diver's woollen jersey and pants.
	12.38 to 12.46	21·0	22·5	84	0·843	564	+289	+105	2·74	+1·46	+114	Lying in bath for 15 mins. in same clothing as above; shivered after 4 mins.; shivering gradually lessened.
8	12.13 to 12.23	19·5	—	77	0·700	301	—	—	1·41	—	—	Sitting on chair; same clothes as in Expt. 7, plus rubber suit.
	12.35 to 12.45	19·5	22·5	72	0·766	382	+81	+27	1·82	+0·41	+29	Lying in bath for 20 mins. in same clothing, &c., as above; shivered at about eighth min., but stopped in a few minutes.
9	11.43 to 11.53	20·5	—	77	0·700	310	—	—	1·45	—	—	Sitting on chair; 2 diver's jerseys, 2 diver's pants, and pair thick woollen stockings.
	12.4 to 12.14	20·5	22·5	75	0·837	450	+140	+45	2·18	+0·73	+50	Lying in bath for 20 mins. in same clothing as above; shivered in 4 mins., but stopped in another 3 mins.
10	11.47 to 11.57	18·5	—	84	0·744	306	—	—	1·45	—	—	Sitting on chair; same clothes as in Expt. 9, plus rubber suit.
	12.9 to 12.19	18·5	22·5	79	0·768	484	+178	+58	2·30	+0·85	+58	Lying in bath for 20 mins. in same clothing, &c., as above; very slight shivering.
11	11.49 to 11.59	18·0	—	78	0·766	294	—	—	1·40	—	—	Sitting on chair; diver's jersey, diver's pants, and pair thick woollen stockings, plus rubber suit.
	12.14 to 12.24	18·0	22·5	78	0·824	499	+205	+69	2·41	+1·01	+72	Lying in bath for 20 mins. in same clothing, &c., as above; water at 43°C. poured into suit previously.
12	11.36 to 11.46	19·5	—	77	0·738	304	—	—	1·44	—	—	Sitting on chair; same clothes as in Expt. 11.
	12.1 to 12.11	19·5	22·5	83	0·764	543	+239	+78	2·58	+1·14	+79	Lying in bath for 20 mins. in same clothing as above; shivered after 5 mins., but only for a few minutes.
13	11.48 to 11.58	18·5	—	84	0·746	295	—	—	1·40	—	—	Sitting on chair; same clothes as in Expt. 11.
	11.59 to 12.9	18·5	22·5	75	0·801	484	+189	+64	2·32	0·92	+66	Lying in bath for 20 mins. in same clothing as above; shivered after 4 mins., but shivering lasted only 3 mins.

that is, from about the tenth to twentieth minute. The thick woollen diver's clothing was a good protective against chilling, particularly when worn double, as in Expt. 9; here, after 20 minutes immersion, the heat loss was increased only by about 50 per cent. In Expt. 10, when the non-water-tight rubber suit was used in addition, the heat loss was increased by about the same amount—namely, 58 per cent. In Expt. 8 the rubber suit seemed to reduce the heat loss markedly when compared with Expt. 7, probably because, for some unknown reason, the clothes remained drier in Expt. 8 and contained more air than usual. Whatever the explanation, this apparently protective effect of the rubber suit could not be confirmed by other experiments, the main conclusion being that when fully immersed in water, a subject is nearly as well protected against cold by ordinary woollen garments as he is when wearing in addition a non-water-tight rubber suit as the outer garment. In Expt. 11 hot water at 43° C. was poured into the rubber suit, but this preliminary warming had no material effect on the subsequent cooling by the bath.

Conclusion.

Of course, the ideal for a person immersed in cold water would be warm clothing, together with a water-tight suit which would keep out the water entirely. Our experiments prove, however, that for at least 20 minutes ordinary thick warm clothing affords quite a good protection from chilling, even if the subject does not increase his heat production greatly by movement. This is of importance in connexion with diving at shallow depths for short periods and using the self-contained diver's apparatus, in which the diver carries his own oxygen in a cylinder on his back. Once, however, a person is sitting on a raft or in a lifeboat, exposed to a chilling wind and splashings of water, then the non-water-tight rubber suit would afford very much greater protection from chilling than would ordinary clothing; of course, any ordinary mackintosh material or garment equally impermeable to wind and splashings would be equally effective as the rubber "overalls."

REGISTRATION OF OPTICAL PRACTITIONERS.

REPORT OF THE DEPARTMENTAL COMMITTEE.

THE Committee appointed in March of last year by the Minister of Health and the Secretary of State for Scotland to consider the Optical Practitioners (Registration) Bill and to make recommendations has brought in a report, which may be obtained from H.M. Stationery Office (Cmd. 2999) for 6*d*.

The membership of the Committee consisted of Mr. F. B. Merriman, K.C., M.P. (Chairman), Mr. O. Aves, Mr. W. B. Barker, Dr. H. B. Brackenbury, Mr. L. G. Brock, Mr. E. Treacher Collins, F.R.C.S., Mrs. W. L. Courtney, Lord Cozens-Hardy, Mr. R. J. Davies, M.P., Mr. H. L. F. Fraser, LL.B., Dr. C. O. Hawthorne, Mr. G. E. Houghton, Sir Henry Keith, with Mr. J. S. Henderson (Ministry of Health) as secretary.

The proceedings were held in private, no reports being issued to the press. Oral evidence was taken at 10 of the 14 meetings of the Committee from bodies and persons as follows: Joint Council of Qualified Opticians, Institute of Ophthalmic Opticians, British Optical Association, Association of Dispensing Opticians, National Association of Opticians, the Worshipful Company of Spectacle Makers, Institute of Chemist Opticians, the Association of the College of Optics, Northampton Polytechnic Institute, the General Medical Council, the British Medical Association, Council of British Ophthalmologists, the Medical Practitioners' Union, Ophthalmic Benefit Committee, National Conference of Industrial Assurance Approved Societies, National Conference of Friendly Societies, and the Parliamentary Committee of the Coöperative Congress. Among the memoranda submitted was one from the Ministry of Health regarding optical laws in other parts of the British Empire and in the United States of America.

Previous Inquiries.

It is recalled in the report that although a "Sight Testing Opticians Bill" was introduced in the House of Lords in 1906, and Acts were passed in the following years for the purpose of regulating the practice of sight-testing in Canada, Australia, and the United States of America, the demand for State registration of opticians does not appear to have been pressed strongly in this country until after the war. In recent years the question has become one of increasing controversy and was examined by the Departmental Committee on the Causes and Prevention of Blindness, which reported in 1922 to the effect—

> that it would be undesirable and a positive danger to the public for Parliament to pass any measure which might convey the idea that an optician, who is a person qualified to provide glasses prescribed by medical men, is further himself competent to examine the eyes of patients and to *prescribe* glasses for the correction of errors of refraction.

This committee considered that if a register were established it would probably be difficult to prevent unscrupulous persons who might succeed in obtaining admission to it from posing and advertising themselves as experts competent to treat diseases of the eye, and the danger to the public would be increased as they would regard the register as an official guarantee that those whose names were included in it were competent not only to provide but to prescribe glasses, and generally to deal with defects of vision from whatever cause arising.

The Royal Commission on National Health Insurance had the question of the State registration of opticians before them in connexion with their examination of the problems arising out of the provision of ophthalmic benefit which is an additional benefit that may be adopted by approved societies. Without expressing any opinion on the subject, the Commission called attention in their report (1926) to the fact that an ophthalmic service was only part of a general service of specialists and consultants and to the difficulties which were encountered when the State found it necessary to limit the practice of dentistry and midwifery to those possessing the requisite professional qualifications, and said that it was a matter for consideration whether similar problems were not being engendered in the case of the opticians. They pointed out that the difficulties became greater as the volume of unqualified practice increased, and suggested that if it became necessary to regulate the practice of opticians much was to be gained by taking the necessary step while the problem was still manageable.

Arrangements for Ophthalmic Benefit.

It is, states the report, within the discretion of an approved society to decide whether a member, who has been recommended for ophthalmic benefit by his insurance doctor, should be sent for examination to an oculist—i.e., a qualified medical practitioner who has made a special study of the treatment of the eye, or to an optician. If it is decided that the member should be examined by an oculist, the society would normally send him to one of the doctors on a list prepared by the British Medical Association with the approval of the Minister of Health and the Scottish Board of Health. That list contains the names of about 800 oculists practising at some 1000 addresses throughout Great Britain, who are willing to make examinations for approved societies at the special fee of £1 1*s*. It has been reported to the Committee, however, that in the case of one group of approved societies, representing a total of about 6,000,000 insured persons, only a very small percentage of their members recommended for ophthalmic benefit are sent either in the first place or after examination by opticians to oculists, and that this group is satisfied with the services rendered by the selected opticians. These societies make it a condition of grant that their members should go to an optician on the register

prepared by the Joint Council of Qualified Opticians, the fee for examination being 5*s*. The Committee was told also that while some other societies require or recommend their members to go to opticians on the Joint Council register, certain other societies make arrangements for the examination of their members by opticians. In 1924 the sum of about £30,000 was spent in England on ophthalmic benefit, and in 1926 the Joint Council of Qualified Opticians received, for distribution amongst opticians on their register, a total sum of £82,257 out of the funds available for ophthalmic benefit, while during the first part of the year 1927 the corresponding payments to these opticians have been at the annual rate of about £178,000.

Registration in Other Countries.

Provision is made by law for the registration of opticians in eight of the provinces of Canada, in three of the States of Australia, in Jamaica, and in the great majority of the United States of America. The practice of sight-testing is restricted to medical practitioners and to persons whose names appear on the official register, and in addition, in some States, the mere selling of spectacles by unregistered persons is also prohibited. Further, in most cases one of the objects of legislation has been to prohibit the selling of spectacles by itinerant vendors. Generally speaking, opticians in these countries are restricted in their practice to the measurement of errors of refraction, and are prohibited from using drugs or from attempting the treatment of any disease of the eye. This legislation has been effective in putting down the unregulated sale of spectacles, and has had the effect of raising the standard of qualification of opticians.

The Present Bill.

The Bill, of which the main provisions were set out in THE LANCET of March 12th, 1927 (p. 570), is not prohibitive in the sense that it would exclude unregistered opticians from continuing to practise, as is the case in most of the other countries to which our attention has been called. It proposes to leave to a board the duty of deciding the qualifications which would entitle an optician to be placed on the register, and, theoretically at least, it would be possible for a great number of existing opticians to be refused admission to any register which might be set up under the Bill. The Bill has been promoted by the Joint Council of Qualified Opticians, which is an association with limited liability registered under the Companies Acts, and governed by a small committee, the members of which are partly appointed by two other associations and partly elected by the opticians whose names appear on the register of the Council. Before an optician can be accepted for inclusion in the register, he must have obtained the diploma either of the Spectacle Makers Company or of the British Optical Association.

CONCLUSIONS OF THE MAJORITY REPORT.

The conclusions reached by ten members of the Committee, including the chairman and the three medical members, are thus summarised. We have seen, they say, that the functions of even the best qualified opticians should be restricted to the use of mechanical means for the correction of errors of vision, and that in the best interests of the patient the responsibility for any examination of the eyes should be upon an oculist, who, in addition to having access to all the resources of the skilled optician, can bring to bear the whole of his medical experience either in deciding that it is possible to determine the absence of disease or, on the other hand, to recognise and to treat any diseased condition that may be present. Opticians cannot, therefore, provide more than at best a partial service, but in view of the fact that large sections of the community in present circumstances do not avail themselves of the services of oculists and of the fact that the public are not in a position to recognise which are the most competent opticians, there is a prima facie case for setting up a State register in order to produce some sort of order out of the present chaos.

As, however, a considerable proportion of cases of defective vision are not cases of mere refractive error but require treatment other than, or in addition to, the provision of spectacles, it follows that the very prescription of spectacles involves an implied decision that no other treatment is required; and we think that this consideration must necessarily govern the standard to be set for admission to any register. After a careful review of the facts regarding the training of opticians as a whole, we have been forced to the conclusion that it would not be in the public interest to set up a prohibitive register which would involve the admission of practically all opticians who were able to show that they have been conducting bona fide businesses. At the same time the setting up of a non-prohibitive register would be useless if not dangerous unless it were made a condition of entry that every candidate should prove to the satisfaction of the Board his ability to exclude the possibility of the existence of disease before prescribing spectacles. We are not satisfied that even those opticians who are most highly qualified in all other respects are sufficiently trained in this respect. Further, the setting up of a register of sight-testing opticians would necessitate the separate registration of opticians who undertake dispensing only.

We find that it would be necessary not only to impose restrictions on registered opticians in the way of treatment, of advertising, and of using confusing or misleading titles, but that it is imperative that they should be prohibited from using drugs. Such a restriction would in effect severely limit the classes of patients whom the opticians would be capable of treating.

State Register Not in Itself Desirable.

In view of all this, we are convinced that the setting up of a State register of sight-testing opticians is not in itself a desirable policy. There remains, however, the question whether it is nevertheless necessary, having regard to existing circumstances, to adopt this expedient in the public interest. In our opinion the answer to this question depends on how far the medical profession is likely to be able to make the services of oculists available for persons in those sections of the community for whom at present they are, for economic reasons, not available.

Prospect of the Extension of the Services of Oculists.

Whether it is as the result of the establishment by approved societies of ophthalmic benefit, or of the question of registration becoming acute, or of the increasing competition of better trained opticians, or merely of the greater public recognition of the importance of defects of vision, we are satisfied that there exists a movement on the part of the medical profession to provide treatment by oculists on terms which will make that treatment much more readily accessible to the public. We are assured, for example, that so far as insured persons are concerned, negotiations are at present being conducted by the British Medical Association with a view to the establishment in all the more populous districts of clinics or other schemes by which the services of oculists would be made available at fees within the reach of approved societies, having regard to the limited funds available for ophthalmic benefit.

Number of Oculists Available.

Moreover, we are satisfied that in recent years an increasing number of medical men, and particularly the younger men, have been making a special study of ophthalmology; also, that there is good reason to believe that a supply of oculists, sufficiently well distributed to meet reasonable demands, will be forthcoming. The setting up of a State register of opticians would not encourage and might indeed retard these movements. We feel that it would be a retrograde step on the part of the State to do anything to discourage the provision of the best

form of treatment for the greatest possible number of patients.

Future of Opticians.

It has been claimed, probably with truth, that the setting up of a State register would incite those responsible for the training of opticians to raise the standard of qualifications, but we see no reason why the improvement in methods of training which has been made in the last 10 or 15 years should not be maintained, though no register is set up. Whether the register is set up or not we feel sure that numbers of the population will resort to opticians in the future, as they have done in the past, and we think that the natural competition which will be engendered by the movement on the part of the medical profession to which we have referred will have the effect of raising the standard in both classes of practice. Further, in view of the large numbers of opticians who are undoubtedly capable refractionists, we consider it would be beneficial in the public interest if use could be made of their services in that capacity in collaboration with and under the control of oculists.

While we have been forced to conclude that it is not in the public interest that a State register of opticians should be set up, we desire to emphasise that one of the principal reasons on which we base this opinion is our view that it is possible and probable that the medical profession will be able to provide insured persons entitled to ophthalmic benefit with the services of oculists at an early date, and at fees within the limit of the funds from time to time available to approved societies for this purpose. We hope, also, that such a service will be extended to the non-insured population. If, however, for any reason, these hopes are not fulfilled within a reasonable time we do not wish our report to preclude the possibility of a reconsideration of the question in the light of the circumstances then existing.

MINORITY REPORTS.

Of the two minority reports the former is signed by three members, Messrs. Aves, Barker, and Houghton, who conclude that the case for the regulation of the practice of optometry by means of a State register is well supported, and that the Committee incurs a serious responsibility in making an indeterminate report. If this issue is shelved at this juncture through reluctance to tackle the problem they foresee as a consequence—

(*a*) the creation of further vested interests which will complicate the problem on the inevitable reopening of the question;

(*b*) the creation of an unfair prejudice against the case of the qualified opticians whose past voluntary efforts have earned the praise of the whole Committee that has heard the evidence; and above all

(*c*) an encouragement to the pretensions of incompetent persons whose activities constitute the most serious and obvious danger to the public.

In the second minority report Mr. Davies records his opinion that optical practitioners should be registered on the general lines of the provisions of the Bill with the following reservations:—

(*a*) As a great deal of the work of optical practitioners is now performed in connexion with the supply of appliances to members of approved societies, there ought to be at least two representatives on the Registration Board representing what may be termed the consumers, to safeguard the interests of insured persons against any tendency to excessive charges by optical practitioners.

(*b*) The entry of young persons into the profession should not be confined in all cases to those who have passed the matriculation certificate, so that suitable young aspirants whose means have precluded a matriculation standard of education should be enabled (with maintenance allowances) to train and qualify for the profession.

The register on its first compilation should, he thinks, include, in addition to those of undoubted qualification and training, a limited number of those with a wide experience of sight-testing and the sale of appliances, but who are now without other qualifications. There should, however, be a time limit (say, as from Jan. 1st, 1930) to the operation of this principle.

CANCER OF THE UTERUS.

THE REDUCTION OF MORTALITY.

THE Ministry of Health to-day issues the sixth[1] of a series of memoranda compiled by the Departmental Committee on Cancer. These memoranda are based on a statistical analysis of the records of all the series of patients affected at such sites which have been published in the medical journals of the world, supplemented, when practicable, by an examination of the records of representative hospitals at home. Such analysis shows the effect of current methods of treatment and affords a standard of comparison for the future. The report is an instructive statement of our present knowledge and its implications, as will be seen from what follows.

ABSTRACT OF THE REPORT.

Cancer of the uterus accounts for between one-fifth and one-sixth of the total mortality from cancer among women. It may occur at any period of adult life, and does so with steadily increasing frequency until at least the age of 60 to 65, after which a small decrease is recorded. Among single women the recorded increase continues to higher ages still. There is therefore no special tendency for the disease to occur about the period of the menopause. Cancer of the cervix is perhaps ten times as common as cancer of the body of the uterus. It is more serious and affects on the average younger women, and the following statements should be regarded as applying to it.

The commonest *symptoms* are hæmorrhage, discharge, and pain. Hæmorrhage occurs in nearly 70 per cent. of cases—especially irregular hæmorrhage, though increasing excessive loss at the monthly periods may also be a manifestation. Irregular periodicity is not uncommon arising out of the menopause alone. The important point to bear in mind therefore is that irregular bleeding in a woman of any age should necessitate immediate and thorough investigation of its cause. The next commonest symptom (in about 20 per cent. of cases) is an abnormal discharge; less common still, at all events in the early and curable stages, is pain (in about 8 per cent. of cases). In the absence of treatment the disease runs its course, from the onset of symptoms to death in a period which, on the average, does not extend to two years, and may be put at one year and nine months. This period, known as the "natural duration," is considerably shorter than that for cancer of the breast.

Antecedent Conditions.—In many instances the disease supervenes upon a chronic inflammatory condition which is often the result of an injury arising from childbirth, and may or may not be associated with a microbic infection. This sequence of events is no more common among women who have borne many children than it is among those who have borne few. It appears, therefore, that it is not a question of the number of labours but rather the fact of a labour having taken place at all that is of importance in causation. A proportion of cases, however, occurs among infertile married and among single women, while a few cases have been recorded in virgins.

Diagnosis.—Once suspicion has been aroused by one or more of the three main symptoms an immediate local examination is essential. In no other way can the point be settled and a sure diagnosis, whether negative or positive, be arrived at. Women having such symptoms should allow no consideration to interfere with their determination to undergo any examination necessary for reaching a definite diagnosis.

Treatment.

Until recent years treatment consisted of operation for those patients seen at a sufficiently early stage,

[1] Cancer—VI. Circular 826. Ministry of Health, 1928. H.M. Stationery Office. 1*d*.

and palliative methods for the remainder. Nowadays the position is changing owing to the gradual advances in treatment by radiology. In some foreign hospital centres this method of treatment has already replaced operative methods entirely; in other centres and countries operative methods are employed for the earlier cases, and radiological ones for those deemed inoperable or unlikely to survive operation for a prolonged period.

Operation.—In judging the effect of operative treatment three main factors require consideration—operability, operative mortality, and survival-rate. (1) Operability varies to some extent with the skill and judgment of the surgeon, but on the average less than half the women applying for treatment are in a condition at which operation can reasonably be undertaken. (2) Operative mortality cannot be considered alone, but only in conjunction with operability. Bearing in mind the varying factors it may be said that on the average the operative mortality is in the region of 10 to 20 per cent. Although of recent years mortality after operation has declined, especially in the hands of experienced surgeons, it still remains an important factor in advanced cases. (3) If recurrence of the local disease takes place after operation, it does so in at least 90 per cent. of cases within five years of the operation. This generalisation is sufficiently true to render survival to a period of five years a reliable criterion of the results of operation. The proportion of patients surviving for five years after the modern operation may be put, on the average, at 40 per cent., though the ratio naturally varies with the skill of the surgeon and the stage of the disease at operation. The results in early cases are roughly twice as favourable as those obtained in patients on the borderline of inoperability.

Radiation.—Treatment mortality is almost negligible with modern radiological methods, a point of distinct importance in a comparison with operative treatment. In weighing results two classes of patient must be considered, the operable and inoperable, since both are susceptible of treatment by radiation. As the method is modern and incompletely developed, making use of agents whose action is not yet well understood, it was applied in the first instance to patients beyond the reach of surgical operation. The period during which observation of cases has been possible is short, some 12 to 14 years, though long enough to indicate that in about 10 or 12 per cent. of these so-called inoperable cases survival to a period of five years can be secured. Some radiologists have extended their treatment to patients in the operable class with the result of obtaining a survival-rate to five years approximately the same as that secured by operation—viz., 40 per cent. These results are secured at the cost of practically no immediate danger to life and without some of the other disadvantages attendant upon surgical operation; moreover, in those instances where eradication of the disease is not secured a considerable degree of palliative action is possible.

A summary account such as the above may, however, convey a misleading impression, since in England the methods have not been extensively used and the published results are very few. The material and apparatus necessary for the treatment are costly, the action of the agents is very incompletely understood, and the number of centres equipped with the necessary material, apparatus, trained staff, and beds is so far small. Pending further developments, therefore, in this and possibly other methods of treatment, chief reliance must be placed on operative surgery.

Conclusions.

A steady improvement in the treatment of local lesions incidental to childbirth may reduce the *incidence* of cancer of the cervix and so accelerate the present downward trend of mortality at this site. Since the interval between the initial lesion and the onset of cancer may be 10, 20, or even 30 years, and since, probably, a small proportion only of women with such lesions eventually develop cancer, the evidence of such preventive treatment will be delayed and gradual in its appearance.

From the point of view of the surgeon or radiologist improvements in treatment depend upon future advances in medical knowledge. From the patient's point of view immediate improvement is possible through a larger proportion of patients presenting themselves for treatment in the early stages of the disease. In spite of the advanced stage of the disease at which women now present themselves, as shown by the low proportion found suitable for operation, as many as 40 per cent. of those undergoing operation survive for five years—and recurrence after five years' freedom is a comparatively rare event. The future holds out promise of an equally effective and, it is permissible to hope, an even more effective treatment by radiology without some of the dangers and inconveniences attendant upon operation.

As has been said, the average interval between the onset of symptoms and death in untreated patients is less than two years. On the average, some six months is allowed to elapse between the patient's noticing symptoms and applying for treatment at hospital, and it is clear that one great cause of the comparatively small proportion of cures is delay in seeking treatment. When it is also realised that by no means all the sufferers apply for treatment, and that among those who do the results are twice as good in early cases as in late ones, some idea is reached of the number of lives that could be saved if *all* sufferers underwent treatment at an early stage. Women should be helped to realise that *irregular* bleeding from the womb imperatively demands immediate and thorough investigation. The mere possession of this knowledge, however, may not be sufficient, since for various reasons, such as difficulty of access to hospital, interference with domestic duties by delay at hospital, unwillingness to submit to operation, a natural human tendency to procrastination, &c., women may fail to act upon the knowledge. Educational measures may be confidently anticipated to be of value, whilst investigation of the causes of delay in obtaining early treatment and their remedy or removal whenever possible should also be helpful. One of the ways by which some causes for delay may be counteracted is now undergoing trial by certain local authorities—namely, the establishment of a special centre or "clinic" for diagnosis and advice. In this, and doubtless in other ways, means may be found for inducing a larger proportion of patients to undergo treatment at a stage where the prospect is hopeful. The means for effective treatment exist; the problem is that of bringing the patients within their sphere.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Tuberculosis among School-children.

THE School Board of Vienna, in coöperation with the Municipal Board of Health, some time ago started regular medical examination of all children attending public or private schools. Each of the school doctors has to examine about 2000 children several times annually. Within the last two years special attention has been paid to the incidence of tuberculosis, and besides a clinical examination, tests have been made by rubbing a small quantity of "dermotubin" into the skin of the forearm or the breast. In the school year 1925–26, 33·7 per cent. of the boys and 34·5 per cent. of the girls gave a positive reaction, whilst in 1926–27 the figures were only 30 per cent. for the boys and 31 per cent. for the girls. In cases reacting severely or showing progressive symptoms, the members of the family were asked to come up for examination at one of the tuberculosis stations in Vienna. Nearly 80 per cent. responded, and it was thus possible to ascertain the state of their health. Thirty-two per cent. appeared to be healthy—i.e., non-tuberculous—while 68 per cent. were more or

less tuberculous or showed signs of previous lesions. Only 17 per cent. had manifest lesions. It is interesting to note that whilst among the children the incidence was a little greater among females, among adults the male was more often affected (54 per cent.). Of the school-children who were tuberculous, 75 per cent. showed symptoms from the respiratory tract alone, 3 per cent. were affected in other organs as well, and 4·2 had non-respiratory lesions only. The remaining cases could not be definitely classified without a further examination, which was beyond the scope of the school doctor.

Foreign Students.

The medical faculty of Vienna has decided to stop admitting foreign students, other than qualified doctors, to the institute of anatomy and to the dissecting theatres until all Austrian students have been accommodated. This measure has been adopted because of the permanent scarcity of bodies for the dissecting rooms. At present there are only 27 bodies available and not more than 50 others are likely to accumulate during the winter term. Over 600 students are engaged in dissecting, and some 25 bodies are also required for examination purposes. There is, therefore, a real danger that many students may be prevented from completing their studies owing to the impossibility of finishing their course in anatomy. As more than 40 per cent. of the medical students in Vienna are foreigners, mostly from the south-east of Europe and the Balkan States, the Austrians resent their presence. This term all the Austrian applicants had to secure their places a fortnight before the ordinary matriculation took place, and in consequence, a large number of Hungarian, Bulgarian, and Rumanian students have left the university and have gone to Italy, France, and Switzerland, where there are no restrictions of this kind. Several classes of the population deplore the loss of some hundreds of students, and in medical circles, too, the decision of the Senate is criticised. The restrictions are only intended for students and not for doctors, and the usual post-graduate work for foreigners in hospitals and other institutions is not affected.

Surgery of the Brain.

In the course of a recent lecture at Vienna University Prof. Anton v. Eiselsberg said that in cases of head injury active measures should be taken in the presence of any progressive condition such as hæmorrhage from the meningeal artery. Otherwise, a conservative policy might be adopted. Where the brain was injured, he said, the patient usually died unless operation was undertaken. During the war Bárány had operated at once on all tangential injuries of the skull, closing the wound immediately, and this plan had given satisfactory results in hospital. All open injuries of the skull needed active treatment and should therefore be dealt with in hospital as abscess of the brain might follow even a slight wound. Conservative, expectant treatment was useful in injuries of the base and in concussion of the brain. Fracture of the base did not necessarily mean an unfavourable prognosis, and the results were bad only when there was infection from the middle ear or the frontal sinus. Operation would be needed if the intracranial pressure increased. Gunshot wounds of the skull, continued Prof. Eiselsberg, might be either tangential, perforating, or intracranial. In the first group all the injured parts—brain, dura, &c.—should be removed so as to prevent bacteria from finding cover. In perforating wounds, as in gunshot wound of the thorax, the openings at the entrance and exit should be cleared of all useless material; the intermediate tissues could not be disinfected. With intracranial wounds the patient was in constant danger. If possible, bullets lying superficially should be removed, but deep-lying bullets were for the most part best left alone as operation was often very dangerous—even more dangerous than the presence of the bullet. In cases of cerebral abscess, Prof. Eiselsberg said, it was difficult to know when to operate. If no pyogenic membrane had formed, inflammation would continue in spite of the abscess being opened. The surgeon should always try to open and drain the abscess at its deepest point, and the posture of the patient should be adjusted accordingly. If too long a time elapsed before operation the patient might succumb to a pyencephalus. (Ten patients out of 18 operated on for cerebral abscess at his clinic had died from this cause.) The condition called pseudo-abscess, of which he had seen five cases, must also be taken into consideration; in these cases the typical symptoms of an abscess developed after injury, but operation revealed a cyst with clear contents.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Murder by Lead Poisoning.

A REMARKABLE trial took place lately in Landberg, a town in Brandenburg. The case was as follows. A man, after having drunk a glass of beer at home, was taken ill with severe colic. As the symptoms recurred repeatedly a doctor was consulted, who found the patient with a livid complexion and suffering from spasmodic contraction of the intestine, severe constipation which could in no way be overcome, and with retention of urine. His condition grew worse, and he died about a month after the doctor's first visit. Owing to the obscurity of the case it was suggested that a post-mortem examination should be performed, but the wife of the deceased objected, saying that she had promised her husband that she would not allow it. Some time later, however, it was rumoured that the man had not died a natural death and accordingly the corpse was exhumed by judicial order, and an official post-mortem examination was made by the law-court medical officers. The result was very striking. The stomach and the intestines were shown to form a dark mass containing sulphide of lead, which was detected in nearly every organ of the body, the total quantity being 19 g. At the trial the wife finally admitted that she had given her husband a powder which her lover had procured for her. He had designed the powder as a sedative compound, but it obviously contained white lead. Both the wife and her lover were sentenced to death.

Medical Staff on Liners.

Formerly medical officers on liners were usually appointed for a single journey only, the appointment being renewed if both parties agreed. The Hamburg-Amerika Line, the big German shipping company, has now made other arrangements, appointing a staff of permanent medical officers. Medical practice on board ship, they point out, requires special knowledge which cannot be gained by the medical man who only makes one or two journeys with the object of seeing foreign countries or enjoying the life on board. The new permanent medical officers will receive a salary sufficient to enable them to give up private practice, and they will be given regular holidays. The company, moreover, has decided to pay the expenses of post-graduate study for their doctors which will enable them to keep abreast with modern progress. The pharmacies and the hospitals on board ship have also been enlarged and fitted with modern appliances. This information will be of interest to readers of THE LANCET in connexion with the article published on Oct. 29th, 1927, dealing with the medical service of the British mercantile marine.

Aeroplanotherapy.

Dr. Kettner, of Charlottenburg, reports that one of his patients, the owner of an aeroplane, asked him whether he agreed to his daughters aged 9 and 11 being taken a short trip in his aeroplane, in spite of the fact that they were suffering from whooping-cough. He gave his consent, and the result was that after the first journey the coughing fits became less frequent and

considerably less severe. Dr. Kettner thereupon advised the father to repeat the trip, and within a short time the illness was cured. The children remained in the air for about an hour each time and the aeroplane rose to an altitude of 3000 metres. A third child, being only one year old, was not taken with the others, and his illness took the usual course. Dr. Kettner proposes that the large aeroplane works should place aeroplanes at the disposal of the health authorities for experiments on a larger scale. Change of climate is known to be the best remedy against whooping-cough: it may sometimes be much cheaper for patients to travel in an aeroplane than for them to spend weeks in the mountains or at the seaside.

The Action of Hormones.

The German Pharmacological Society lately held its annual meeting at Würzburg. The first subject to be discussed was the physiological action of insulin. Dr. Kessel said that the glycogenic action of the liver is hindered by insulin and the power of the erythrocytes to absorb sugar is increased. Guanidine also produces a decrease of sugar in the blood, but only in a lethal dose. In synthalin, he said, the lethal and the curative doses are not widely separated. Dr. Beylonia (Utrecht) spoke of the action of the hypophysis, of which he considers there are five different parts with different actions. Some of these act on the uterus, some on the bronchial muscles, and some on the breast. Prof. Ernst Laqueur (Amsterdam) spoke on female sexual hormones, of which he had produced an extract acting on sexual desire and on the growth and the secretion of the mammary gland. Prof. Ludwig Fraenkel (Breslau) said that the compound acted successfully in about 30 per cent. of the cases in which there had been trouble caused by weakness in the function of the ovaries, menstruation being again restored. The hormone may be extracted from the urine of women in the last months of pregnancy.

A New Institute at Heidelberg.

An institute for research in internal medicine is to be established in Heidelberg. It will be connected with the existing institute for cancer research, founded by the late Prof. Czerny, and with the institute for the study of albuminous substances, of which the late Prof. Kossel was the head. The new building, for which a committee of medical experts and distinguished men of other professions will be responsible, will include departments for pathology, medical chemistry and physics, and psychology. The city of Heidelberg has presented the committee with a building site, and the German Treasury will contribute to the expenses.

Election to the Medical Chamber.

This year proportional representation, which is employed for political elections throughout Germany, was for the first time used in electing members of the medical chambers which are the official representative bodies in every province, and have disciplinary powers as well as the right to tax members of the profession. Formerly there used to be practically no contests during the elections in Berlin and in the provinces, since large medical unions gave their consent to a list of representatives, an absolute majority being in this way assured. Under the new system in Berlin this year there were very heated contests resembling in many ways political elections. As many as eight lists of candidates were presented to the voters; of these the only ones of interest, apart from the list of the combined medical societies, were those of the Socialist medical men, of the assistants, and of the club medical officers, who are against the system by which patients have free choice of doctor. At least 75 per cent. of the profession took part at the elections, with the result that members on the list of the combined medical societies, who alone had held all the seats in the former chamber, gained only 52 out of a total of 106. The discussions in the chamber are therefore likely to become more animated.

Sick Club v. Medical Profession.

The sick club of the Krupp's works at Essen has instituted a dispensary for its members and tried to appoint medical men who alone will have the right of attending to members. As a large part of the population of Essen is employed at Krupp's works, if this came into effect local medical men would be deprived of a serious part of their income. The local branch of the Hartmann-Bund therefore has prohibited its members from accepting appointments at the dispensary, which has thus had to be closed down. The members of the club in consequence have had the greatest difficulty in obtaining medical attendance other than at their own expense, and the club has brought an action for damages against the Hartmann-Bund. This has been dismissed by the court which stated that the action of the Hartmann-Bund was undertaken to protect the local medical profession. The work of the club would not, as the plaintiffs had alleged, be rendered impossible as a result of the boycott ordered by the medical profession, provided that the medical men were not excluded from working at the dispensary.

UNITED STATES OF AMERICA.

(FROM AN OCCASIONAL CORRESPONDENT.)

The Position of Midwives.

THE present position of midwives in the United States is shown as a result of an inquiry made throughout the country by the Medical Society of Virginia. Out of 96 questionaires sent to State medical societies and health officers 59 replies were received. Only four States, all in the south, reported that the number of physicians was insufficient to attend all cases of labour. Four other States qualified an affirmative answer by adding "if properly distributed." Massachusetts, Vermont, New Hampshire, Michigan, Iowa, Oklahoma, Nevada, and Kansas stated that 95 to 100 per cent. of the indigent or poorer cases were attended by physicians. Delaware, North Dakota, and Colorado estimated 80 to 90 per cent., while all the rest gave figures lower than 50 per cent. As regards the medical sentiment towards midwives 16 States do not want them, 14 do "when they are necessary." Two States want midwives for coloured cases only, two States are indifferent, and two States so hostile they will not recognise them at all.

In New York State, according to *Health News*, the official organ of the Department of Health, regulation of the practice of midwifery is resulting in the gradual disappearance of midwives. When the licensing of midwives was first required in 1914 a survey showed more than 1000 women practising in the State (New York City and Rochester excluded). Some of these had had four years of training in European schools, others had some training, while still others were dirty in their methods, ignorant, and absolutely untrained. All were more or less careless in reporting births. The most disreputable lost their licences forthwith. Since 1914 a total of 773 women have been licensed, but as there is a constant loss of midwives from practice, as is the case in every country, there will be only about 300 licences issued in 1928. Only 11 first licences were issued in 1927. The number of births reported by midwives seems to be decreasing even more rapidly than the number of midwives in practice. In 1916 it was estimated that midwives were reporting 16 per cent. of the births; ten years later only 6 per cent. were reported by midwives.

While this tendency seems to be fairly prevalent throughout the country, leading obstetricians are asking whether it is certain that the American system of giving preference to physicians and hospital care of maternity is really better than the European system, which allows midwives to practise in normal cases. The statistics of maternal morbidity and mortality, even when allowance is made for possible deviation in standards of notification, do not give much comfort to

the United States. Moreover, Dr. Josephine Baker has recently produced comparative statistics from the States themselves which are all in the favour of the midwife, imperfectly trained and supervised as she so often is. This is plainly shown in the following tables derived from Dr. Baker's statistics:—

TABLE I.—*States in which Midwives are Working.*

	Per cent. births reported by midwives.	Maternal mortality.
Minnesota	9·4	5·3
Kentucky	17·7	6·0
Maryland	18·1	5·8
New Jersey	21·7	6·4

TABLE II.—*States in which Midwives are not Working.*

	Per cent. births cared for by physicians.	Maternal mortality.
New Hampshire	100·0	7·1
Vermont	100·0	6·8
Oregon	100·0	7·2
Wyoming	99·2	9·0

The corresponding rate for the birth registration area is 6·4. It is to be observed that the States in Table II. are all sparsely populated. On the other hand, the coloured population of Kentucky and Maryland would stack the cards against the midwives. One argument used by public health officials against the employment of midwives has been that the ideal is to care for all cases of labour in hospitals. Whether or not this ideal is practicable is one question; another is as to whether it is desirable. The increasing number of hospital cases in the country has not so far affected the incidence of puerperal sepsis. Another argument against midwives is the difficulty of finding material on which to train them. This difficulty, however, is probably not insuperable, especially if midwives trained in one State should be admitted to practice in another.

Marriage and Divorce.

Marriages have increased from 1925 to 1926 by 1·2 per cent. and divorces by 3·1 per cent. Reckoning each per 1000 estimated population the marriage-rate has fallen slightly (from 10·30 to 10·26), while the divorce-rate has increased from 1·52 to 1·54. The change for the country as a whole is not great, though in individual States there have been large changes. Thus the marriage-rate in Nebraska has risen by nearly 20 per cent., while the divorce-rate in Florida has increased by more than 25 per cent. In order to determine whether there is any relationship between the changes in marriage and in divorce-rates in the different States I have calculated the correlation coefficient which I find to be $+0{\cdot}26 \pm 0{\cdot}08$—sufficient to indicate that some relationship does exist. Nevada remains the popular resort for divorce with a wholly fictitious rate of 13·19. The highest marriage-rate is 21·6 in Florida, Maryland is second (16·3), and Delaware lowest (4·6).

The Toxicology of Tobacco.

From the digest of medical literature which he prepared recently for the Committee to Study the Tobacco Problem, Prof. Schrumf-Pierron, of Cairo, concludes that "the chief poison in tobacco-plant leaves is nicotine."[1] The more important of the possibly synergic poisons are, in his view, pyridine, ammonia, and collidine. Prussic acid, carbon monoxide, pyrolin, the phenols, &c., "have but a secondary and perhaps negligible effect." Since this summary was prepared two new poisons have been added to the list. In Germany, at the Kaiser Wilhelm Institute for Biochemistry, it has been discovered that there is derived from the plant pectin in tobacco an appreciable quantity of methyl alcohol[2] approximately 40 mg. in 20 cigarettes. In the United States at the North Dakota Agricultural College, Dr. Remington has found arsenic present in various brands of tobacco "in quantities greater than the amount generally permitted by the authorities in food."[3] Perhaps these poisons, too, belong amongst those that have a secondary or negligible effect. Even non-smokers consume moderate quantities of plant pectin (though not in the form of vapour) and the ills usually attributed to excessive smoking are not suggestive of arsenical poisoning. The intestinal symptoms which might be attributed to arsenic are associated rather with acute than chronic tobacco poisoning, and have already been saddled pretty surely on the nicotine content of the tobacco.

Tularæmia.

Warnings now appear with some regularity in the daily papers against the risk of contracting tularæmia in skinning and cutting up rabbits. The rather attractive title of this new disease gives rise to some interesting speculations. I have heard one member of a county medical society with classical leanings derive the "tular" from the Greek. A writer in the *Spencer Reporter* (Iowa) gives it a bacteriological origin. "The germ," he writes, "known to science as the toolaroo, is so slender that it can skate right through the human skin." The more prosaic associate the name of the disease with that of the district—Tulare County in California—where it was first discovered.

The American College of Physical Therapy sails from New York for London on May 26th. Their programme will take them also to Paris, Montreux, Zürich, Vienna, Berlin, and Copenhagen. The International League against Epilepsy sails from New York on March 17th and will also visit London before proceeding on its European tour. The American Psychiatric Association has also plans for a visit to Europe.

[1] Tobacco and Physical Efficiency. By P. Schrumf-Pierron, M.D. New York: Paul B. Hoeber. 1927. Pp. 134. $1.85.
[2] Neuberg, C., and Ottenstein, B.: Uebertritt von Methylalkohol in den Tabakrauch, Biochem. Zeit., 1927, clxxxviii., 217.
[3] Jour. Amer. Med. Assoc., 1927, lxxxix., 1883.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

Work of the Appointments Commission.

IN the midst of the discontent which has been roused among the members of the local authorities by the working of the Appointments Commission which has displaced the local authorities in regard to the appointment of officers, it is gratifying to read a considered opinion from an independent observer in favour of the working of the new system. In a public speech delivered recently the Bishop of Killaloe used the following words: "These offices are now filled by a detached body appointed so as to be free from the powerful local influences that very often directed appointments in the wrong direction. No doubt this is often disappointing to the local interests concerned; but I think that, on the whole, the people will find in the long run it is the best method, and that they will have the benefit of the very best appointments. The system will help to remove from our public life things that were a great source of corruption and jobbery, if we can believe public rumour, and I am afraid there was too much truth in it. No matter what they were made of, no matter how good their intentions, the local gentlemen on whom the responsibility of making appointments fell were not always free; they were embedded in a network of local connexions which deprived them of their freedom, and I often sympathised with their position. I believe that the new system is to their advantage and to the advantage of the public, though, of course, it may cut rather painfully in some instances."

QUEEN CHARLOTTE'S MATERNAL MORTALITY FUND. In response to the appeal initiated last May for £250,000 to help Queen Charlotte's Maternity Hospital to study the causes and conditions of maternal mortality, a sum of £60,000 has so far been raised.

EXTENSION OF ST. BARTHOLOMEW'S HOSPITAL.—The site of Christ's Hospital, which has been acquired by St. Bartholomew's, has now been cleared, and the new surgical block of 250 beds, with five operating theatres, can now be begun. It will cost £177,000. When means are available the governors intend to erect a block for paying patients at the corner of Little Britain and Smithfield.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

A BRIEF SURVEY OF 1926.

OPPORTUNITY was given us during the year that is past to comment on some 120 annual reports dealing with the public health work done in England, Wales, and Scotland in 1926, and an attempt may now be made to summarise a few of the points contained in these reports as an indication of the status of public hygiene.

General Sanitation.

In *housing* matters a slightly more optimistic vein is noticeable, though very few medical officers express themselves satisfied with the rate of progress. In most districts more houses were built in 1926 than in any year since the war. In some areas the natural increase in the population is now being provided for, and in a few something is being done to catch up the arrears of the years before and during the war. It has not been possible to close "unfit" houses to any extent, and little has been done in the matter of slum clearances. There is general agreement that as yet no provision has been made for the poorest class of the community, though in a few cases perhaps there are signs of a general upward movement. The need for cheaper houses is being expressed, and in many cases the amenities of the new municipal houses are spoilt by subletting.

There is a demand for regional planning and for control of the building which is going on along the lines of motor traffic regardless of drainage and water facilities and of æsthetic effect on the beauty of the country side. At the top of the social scale we have the disfiguring effect of week-end bungalows, while at the other end we have the nuisance from dwellers in vans and makeshift homes.

In the northern towns there is a much more determined effort to get rid of privy middens, pail-closets, and the like. Salvage schemes are being added to or replacing destructors. Financial restrictions hamper the perfection of sewage disposal schemes, and many medical officers are becoming despondent about the question of rivers pollution. Research is needed as to better means for dealing with wastes from collieries, paper works, sugar beet factories, &c.

In many counties the question of *water-supply* is a difficulty, and the new legislation with regard to dairy farms has brought the defective nature of our organisation for the equitable distribution of available water into the limelight.

More interest is being taken in the prevention of *atmospheric pollution*, and there is a healthy demand for regional smoke abatement committees, which may help to abolish the absurd permissible limits for black smoke, still obtaining in some of the mill towns.

Clean milk competitions increase in number, and much is hoped from the new Milk and Dairies Act. The production of designated milks makes some progress, but steps are needed to prevent ordinary milk being sold under fancy names. The working of the Tuberculosis Order has been a disappointment, and lacks the preventive point of view, as has been pointed out in our columns[1] by Dr. W. G. Savage. Compensation for bovine tuberculosis has been asked for by the agricultural interests for some 30 years, but sanitarians have always stipulated that it should be coupled with a well-thought-out scheme for reducing the prevalence of the disease. Now, apparently, we have the compensation without the scheme. In Scotland it would seem that better results are being obtained, and most of the counties are arranging for regular veterinary inspection of milk herds.

Infectious Diseases.

Immunisation is being more used for the prevention of diphtheria, for the protection of hospital staffs, and for dealing with outbreaks in residential institutions, and some local authorities are offering this protection to the children in their district. Good results are being claimed for antitoxin in severe cases of scarlet fever. The notified cases of encephalitis lethargica have been fewer than in the previous year, but the deaths proportionately more numerous, owing to deferred fatal results in cases notified in previous years. The establishment of joint special institutions for the survivors serving large areas has been mooted, and will no doubt take more definite shape when further experience has been gained at institutions such as Winchmore Hill.

Tuberculosis dispensaries are being more used for consulting purposes. No new treatment for pulmonary tuberculosis created any favourable impression during the year, but the value of artificial pneumothorax treatment for suitable advanced cases is becoming more generally recognised.

Maternal and Child Welfare.

In many reports it is shown that maternal mortality from childbirth and neonatal mortality have declined little, if at all, since the beginning of the century and antenatal work is usually held out as the remedy. In some cases antenatal advice is given by the health visitor, by the midwife in charge of a municipal maternity home, or by the infant welfare medical officer at a centre, but only in a few districts has this antenatal work developed into real preventive midwifery at antenatal clinics conducted by obstetricians of experience. The issue of the Puerperal Fever Regulations has met with a good response, and in many districts arrangements have been made for the provision of hospital treatment, special nursing in the home, a consultant's opinion, and bacteriological examinations.

The damage done to eyesight by ophthalmia neonatorum grows distinctly less, and most sanitary authorities have complied with the Ministry's suggestion to forgo efforts to recover the fee of the doctor called in by the midwife on account of the condition of the baby's eyes.

Orthopædic schemes for children of pre-school and school age have made decided progress, and more beds are being made available for non-pulmonary tuberculosis. General interest has been aroused in the question of the control of acute rheumatism in childhood, and the attempt to prevent heart disease, resulting in at least two municipal schemes—namely, in Paddington and Kensington—during 1927. Light treatment is being more extensively tried both at infant welfare centres and for tuberculosis. Most districts can claim during the last two decades an extraordinary reduction in infant mortality, apart from that of the first few weeks of life, but the statistics we have given show that for the best results we must not look to health resorts. One would have thought that the best possible advertisement for a health resort would have been low death-rates of mothers and infants. Health resorts cannot, of course, avoid some of their death-rates being swollen by the aged and invalid, who throng to them with the hope of prolonging their lives. This does not apply to the rates mentioned, which are calculated per 1000 births. There may be something in the suggestion made by one medical officer of a health resort that the mothers are too busy catering for visitors to have much time to attend to their own children. It might be pertinent to ask, "Should a health resort ever have a day nursery?"

Administration.

Many of the reports give evidence of progress towards unification of the public medical services with its broadening effect on the work of both the medical and the nursing personnel. Financial considerations have interfered with the increases of staff required to cope with the recognised need for better medical supervision of the pre-school child. The same remark applies to the school dental staff.

[1] THE LANCET, 1927, i., 722.

PUBLIC HEALTH IN THE LOCAL LEGISLATION OF 1927.

A SURVEY of the public health provisions in the Local Acts of Parliament passed in 1927 does not reveal many notable new developments. The Fleetwood Urban District Council has taken precautions to control the preparation of prawns and shrimps for sale. Every dealer in prawns and shrimps within the council's district who contracts with an employee or any other person for their preparation for sale for human food must enter on a special list the name and address of any person so contracting with him or so employed by him otherwise than on his own premises. No shrimps or prawns are to be supplied in pursuance of any such contract or employment until the name and address has been entered on the list, together with the date of delivery. The lists are to be open to inspection by the sanitary inspector. Notice of the new law is to be published locally by newspaper advertisements and handbills. The maximum penalty is fixed at 40*s*. Other instances of food legislation are more familiar. Buxton has prohibited the inflation of meat carcasses. Sunderland has taken precautions against the contamination of food intended for sale. Food poisoning has been made a notifiable disease at Aberdare, High Wycombe, and Swansea. Several local authorities enact penalties upon the original vendors of unsound food and authorise the search of sacks and parcels, carts and other vehicles. Food storage accommodation in dwelling-houses is regulated frequently; so is the manufacture of potted meats and ice-cream; another not uncommon clause is the restriction upon the conduct of a food business by an infected person, and there is also the usual prohibition on the sale or handling of food by a person suffering from tuberculosis. Fleetwood, Buxton, and High Wycombe arrange for compensation to employees who are made to cease work in order to avoid the spread of infectious disease. Other usual provisions against infection are those for closing Sunday schools and restricting entertainments in time of epidemics. Parents, too, are in several cases obliged to notify the head teacher of a child's infection. At Sunderland, Aberdare, and High Wycombe the furnishing of laundrymen's names can be insisted upon. Fleetwood provides for the removal of bodies where death is due to infectious disease; Leeds provides for the removal of infirm and diseased persons. The Liverpool Corporation failed to carry its proposed clause to make venereal disease notifiable, and the Bradford precedent was cited in vain. Fleetwood has arranged for the municipal supply of antidotes to doctors, and both Fleetwood and Sunderland dealt with infectious or parasitic disease in stables. Clauses about dust-bins, offensive trades, slaughter-houses, and the cleansing of filthy persons are nowadays too common to need mention. Attention should, however, perhaps be drawn to the special sanitary legislation of Leeds and West Bridgford. Leeds enacts that, when there is adequate water-supply and sewering, the corporation may serve the owner of a building with a notice requiring existing trough-closets to be converted into water-closets. If the existing trough-closet is not injurious to health and does not amount to a nuisance, the corporation will share the expense. In the case of West Bridgford, the local council may similarly insist on the conversion of slop-closets to water-closets and may require the provision of a separate receptacle for ashes and house refuse.

Public health, of course, is merely one aspect of the authorised statutory activities of local authorities. Those activities range from the provision of municipal golf courses (as at Liverpool) to the maintenance of grave spaces (as at Fleetwood) for a capital sum. The concession to the Bristol Water Company and the Reading Gas Company of power to give their employees the benefit of a recreation-ground is another welcome sign of the times. Other gas, water, and electricity undertakings indicate schemes of profit-sharing. Matlock Urban District Council seems to be the only local authority to consolidate its legislation in 1927, and to substitute a single orderly Act for a series of successive and overlapping enactments. It may be worth while to mention that H.M. Stationery Office publishes an index to the Local and Private Acts of the year, and that the index for 1927 has already been issued at the price of 2*s*.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED DEC. 24TH, 1927.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 255 (last week 212); scarlet fever, 1751; diphtheria, 1324; enteric fever, 52; pneumonia, 1561; puerperal fever, 35; puerperal pyrexia, 82; cerebro-spinal fever, 10; acute poliomyelitis, 9; encephalitis lethargica, 30; continued fever, 1; dysentery, 4; ophthalmia neonatorum, 85. There was no case of cholera, plague, or typhus fever notified during the week.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox, 4 (0) from enteric fever, 94 (33) from measles, 9 (1) from scarlet fever, 18 (3) from whooping-cough, 64 (15) from diphtheria, 61 (10) from diarrhœa and enteritis under two years, and 120 (17) from influenza. The figures in parentheses are those for London itself. The deaths from enteric fever outside London occurred in Walthamstow, Bolton, Sheffield, Sunderland, one each. Of the 61 fatal cases of measles outside London 10 were reported from Bristol, 17 from Manchester, 2 from Salford, and 3 each from Derby, Liverpool, and Sheffield, while the figure from Glasgow for the same week was 39. The number of stillbirths registered during the week was 274 in the great towns, including 53 in London.

MEDICINE AND THE LAW.

The Un-open Road.

AFTER the Christmas blizzard, when the business world is reckoning up its commercial losses and when members of the public are recounting their personal inconveniences, the disorganisation of the health services of the country deserves a few words. If roads are blocked for several days by snow medical practitioners are immobilised, and hundreds of homes where the doctor is wanted are deprived of help and distracted by increased anxieties. To scold at the forces of nature is as impotent as to fold the hands in resignation to whatever comes from the heavens. Xerxes, when his bridge across the Hellespont was broken by a storm, ordered the sea to receive 300 lashes; but he also ordered the chiefs of his bridge-building department to be decapitated. The Ministry of Transport must not be surprised if it is asked what contribution it made towards the immediate removal of the obstructions on our main roads last week. Allowance, of course, must be made for the suddenness of our climatic changes, but the official meteorologists can tell the Ministry of the recurrence of a severe winter and their day-to-day prognostications have lately been unusually confident. Allowance, too, must be made for financial stringency, but the resources of the Road Fund should be as readily available for removing snow-drifts as for other forms of maintenance and improvement. If it is said that the Minister is not so much to blame as the hundreds of independent local authorities, has the Minister taken any step to stimulate and coördinate their activity? Nobody expects him to be responsible for the condition of every country lane, but the plight of a city like St. Albans inside the London traffic area, where he has special powers and duties, was deplorable. When the general strike threatened the freedom of the roads tanks and the full civil and military resources of the country were employed. The recent absence of central organisation and initiative, at a season when volunteers

could have been readily enlisted, was the more conspicuous. Is there any general scheme of snow-plough distribution? The railways for the most part cleared their cuttings with alacrity and success; can the Minister's specialists in road engineering devise no method for the rapid clearance of snow by mechanical devices? Or are our expensive public roads to be deemed merely a fine-weather luxury? Restraint upon State interference may be excellent in principle, but even the prompt issue of accurate information as to the condition of particular routes—a task facilitated by wireless broadcasting—seems to have been surrendered to the private bodies formed by motorists for their mutual protection. The Ministry of Transport has its critics; it has lost a chance to discomfit them.

Correspondence.

"Audi alteram partem."

THE PRESENT POSITION OF THE VOLUNTARY HOSPITAL.

To the Editor of THE LANCET.

SIR,—Having read with the greatest interest the address by Dr. Graham Little, M.P., in your issue of Dec. 17th, 1927, I think it would be indecent of me to refrain from commenting on this matter. His address and conclusions bristle with points of controversy and fallacy like "quills upon the fretful porcupine." The obvious error into which he has fallen is that of describing a condition existing in a small area of London, and from that, generalising for the whole of the country. It is just as easy for any other person to generalise in a similar manner and, with your permission and subject to your correction, I will do so without going so very far from London after all.

The hospital which I have the privilege to direct is not a voluntary hospital but belongs to what I like to call the involuntary class, which nevertheless has to turn out the work. The area from which patients are drawn is 70 square miles, somewhat greater than half the metropolitan area of London (118 square miles), and from the very outset of its career the North Middlesex Hospital (Edmonton, N. 18) has been in the unique position of having to deal with patients from this dormitory area in all and every circumstance and illness, excepting notifiable and infectious diseases. A teaching hospital affiliated to a university is, of course, a thing apart, and will always attract some of the best men in the profession, but I do not think that Dr. Little is justified in his sweeping conclusions as far as many large non-teaching involuntary hospitals are concerned, as there *are* many such in the country, doing the most excellent work, with every facility for research and scientific treatment.

Under the heading "Bureaucratic Ideals," Dr. Little has an opportunity for introducing political views. As I am not a politician I cannot meet him on equal ground, except to suggest that it might be equally feasible to discuss some hospitals under the heading "Autocratic Ideals." These high-sounding phrases are merely words and definite actions speak much louder. Sir Arthur Stanley is true when he talks of "the great increase of confidence on the part of the general public in the treatment which they receive when they enter the hospitals," but this applies to *all* good hospitals, no matter what be the nature of their origin. Sir Arthur Stanley has been to see our work at Edmonton, and if I mistake not his words, he was very much impressed, not just by "bricks and mortar," but by other amenities common to all medical workers with proper ideals of service.

The author of "Voluntary Hospitals in Great Britain (excepting London)" paid us a visit ten days ago, and on the occasion of his visit, Mr. R. H. P. Orde, Director of Hospital Services, St. John of Jerusalem and British Red Cross Society, saw quite a series of items of interest, apparatus for advanced technique, &c., in use here which cannot be seen in any voluntary hospital in Britain.

Without proceeding further, I should like to ask Dr. Little two questions: (1) Will he come here and see an example of what I believe to be a properly efficient involuntary hospital? (2) Will he answer the question which has puzzled me for so long, What is the difference between (say) a poor-law appendix and a voluntary appendix?

I am, Sir, yours faithfully,

SPENCER MORT, M.S., M.D., F.R.S. Edin.,
Medical Superintendent and Surgical Director, North Middlesex Hospital.

Silver-street, Upper Edmonton, N. 18,
Dec. 28th, 1927.

ANÆSTHESIA FOR OPENING RETRO-PHARYNGEAL ABSCESS.

To the Editor of THE LANCET.

SIR,—May I be permitted to take exception to one passage in Mr. Hasler's otherwise admirable instructions on the "Treatment of Emergencies in Anæsthesia" in your issue of Dec. 31st, 1927? The statement that "in cases of retropharyngeal abscess . . . if a general anæsthetic is required it should be given either by the intratracheal method or through a laryngotomy tube," will not, I think, meet with general acquiescence. The condition referred to is most usually met with in children and the necessary operation requires neither a long nor a profound anæsthesia. In fact the degree of narcosis needed for safe performance of the operation is generally insufficient for passage of an intratracheal catheter. This is also undesirable because of the likelihood of rupture of the abscess during the necessary manipulation. By having the child kept on its side during the administration of the anæsthetic, or with the head extended over the end of the table, with a gag slightly opened resting in the upper side of the mouth and the head below the level of the chest, an open anæsthetic can be given to these patients to a degree which permits the operator to do all that he wishes when, relaxation being reached, the gag is widely opened. By proper management of the child's position risk of inhaling pus is excluded and there is no need to resort to laryngotomy. For young infants it is often possible and expedient to do without any anæsthetic at all. It seems to me that it would be a mistake to allow Mr. Hasler's recommendation to assume unchallenged the authoritative position which its appearance in your pages bestows upon it.

I am, Sir, yours faithfully,

St. Mary's Mansions, Paddington, W., Jan. 2nd, 1928. J. BLOMFIELD.

RECURRENT COLDS.

To the Editor of THE LANCET.

SIR,—I have read with special interest the letter of Mr. Mark Clement in your issue of Dec. 31st, 1927, because my own experience bears out the views expressed. For 12 consecutive months when house surgeon and house physician at the Liverpool Royal Infirmary I slept in the open air. At the same time I discarded underclothing and began to take a daily cold shower. This régime began in the mild April of 1926 and continued throughout the winter, when in spite of fogs and bad general conditions I did not catch cold. This is notable in view of the fact that in previous years I had difficulty in avoiding colds and that medical officers of large institutions seem prone to colds and minor ailments being, on the whole, overworked and underexercised. The bed used was of an ordinary type, protected from blowing rain by a tarpaulin. In winter it was the custom to spray the nose before retiring with a preparation as follows: Eucalyptol gr. i., camphor gr. i., menthol gr. i., liquid paraffin ℥ i.

I am, Sir, yours faithfully,

C. ALLAN BIRCH.

Royal Infirmary, Liverpool, Jan. 3rd, 1928.

SACRO-ILIAC SUBLUXATION.

To the Editor of THE LANCET.

SIR,—I was an assistant to Goldthwait of Boston for two years and naturally am interested in your annotation in the issue of Dec. 17th, 1927, and in Dr. Mennell's letter in the issue of the 31st, in regard to sacro-iliac subluxation. In Goldthwait's clinic I saw many cases of sacro-iliac strain and injury and meet with these cases frequently at the present time. It is important to differentiate between cases of strain and subluxation of the sacro-iliac joint. Strains of the sacro-iliac joint are of frequent occurrence. Actual subluxation, with demonstrable displacement clinically and by X rays occurs, but is not common. I can recall six cases in Boston, where I was convinced that subluxation had taken place. An X ray of the whole pelvis is required. It should be taken stereoscopically, when asymmetry at the symphysis pubis is the most valuable positive sign.

Strapping and suitable supports are of value only after the subluxation has been corrected by manipulation under an anæsthetic. They are to be regarded as necessary makeshifts, until re-education of the muscles of the trunk and pelvis, to correct the faulty statics, has been completed; for it is the tone and correct use of the muscles which control and maintain the integrity of the spinal joints to a greater degree than the ligaments. Smith Petersen has reported recently the end-results of 30 cases of relaxation of the sacro-iliac joint, with relief of symptoms by operation. He started his investigations as a sceptic and submitted all his cases to a most searching physical, neurological, and radiological examination. I saw a number of these cases and felt convinced of the soundness of his claims in this regard. I have had two cases of true subluxation during the last year.

From being endemic in Boston, strain and subluxation of the sacro-iliac joint have now become epidemic all over America. The reason for this lies, in my view, in the fact that traumatic affections of the sacro-iliac joint are common and that American surgeons are gradually learning the lessons which Goldthwait has taken so much trouble to teach. I would submit, further, that most of the obscurity in regard to cases complaining of "low back pain" is explained by a general lack of knowledge as to how a systematic physical examination should be carried out. There is no easy road for learning it, and without close study, also, it is difficult to interpret the facts properly. Cases of backache and sciatica are capable of scientific analysis and classification at the present time, and they include the important and frequent class of case which is the subject of your interesting annotation. I hope it will stimulate interest in this country, for there is no doubt that these cases are very largely neglected, important as they are in regard to frequency, lack of accurate diagnosis, and in knowledge of the appropriate treatment of the different lesions.

I am, Sir, yours faithfully,

Edinburgh, Jan. 1st, 1928. W. A. COCHRANE.

THE PREVENTION OF DIPHTHERIA.

To the Editor of THE LANCET.

SIR,—The letter from Dr. S. Rowland, M.O.H. for Northampton, in your issue of Dec. 24th, 1927, appears to suggest that he has some doubt as to the value of immunisation in diphtheria. It would be interesting to know: (1) whether Dr. Rowland has himself had any personal experience of this method; (2) exactly what hospitals he refers to in the last paragraph of his letter where he states that "From what one has heard first hand from those who have worked in hospitals where Schick's method was practised, I feel for the present we must return for Schick the same verdict you brought in for B.C.G.—viz., not proven."

Such statements should, I feel, not be made without giving specifically the names of the hospitals concerned and the workers responsible for such statements. Dr. Rowland quotes an article by Drs. Harries, Macfarlane, and Gilhespy, but does not mention that the writers are among those most convinced of the value of the Schick method and, in fact, that the last paragraph of the article which he quotes states that the best method of rendering a "carrier" innocuous is to ensure that he should live "amongst children who have also been rendered immune by the safe and certain means provided by toxin-antitoxin."

The rest of Dr. Rowland's letter does not appear to deal with the question at issue. In the report issued by Dr. J. Graham Forbes upon "The Prevention of Diphtheria" Dr. Forbes showed that while the (septennial) attack-rate from 1904–24 had risen from 11·2 to 19·1, the death-rate had also risen from 0·99 to 1·33, showing that the suggested explanation of the increased incidence given by Dr. Rowland is a fallacious one. As far as I know every medical officer who has had practical experience of the Schick method, both as regards the test and as regards immunisation, is convinced of its extreme value in the prevention of diphtheria.

The report of the Public Health Committee of the London County Council can only be considered by such medical officers as a highly unsatisfactory one. It has been demonstrated in Edinburgh that immunisation among children can only be carried out satisfactorily on a large scale through the school organisations, and it is a great pity that the Edinburgh system could not have been brought into force in London. The fact that diphtheria has waves of high and low incidence has nothing to do with the matter. The point at issue is that we have in the Schick method the means of preventing susceptible children from contracting diphtheria during their school life and parents should have the means at their disposal of availing themselves of the method. Whether immunisation would lessen to any great degree the number of cases of diphtheria would obviously depend on the number which were immunised each year.

I am, Sir, yours faithfully,

Jan. 2nd, 1928. A. H. G. BURTON, Medical Officer of Health, Ilford.

AN OPERATION FOR THE ALLEVIATION OF DEAFNESS.

To the Editor of THE LANCET.

SIR,—The idea of relieving the deafness in cases of marked Eustachian obstruction, with its concomitant non-suppurative tympanic lesions, by providing a permanent opening for ventilation between the mastoid antrum and the adjacent portion of the meatus, occurred to others many years ago. The claims, however, of Malherbe and Garnault have neither been confirmed nor accepted by competent and reputable otologists, either here or abroad; and I am only performing an obvious duty in pointing out that the extensive operative interference advocated by Mr. Nesfield is, by a general consensus of otological opinion, considered useless and therefore unjustifiable in the class of case under discussion.

Can Mr. Nesfield bring forward cases which were seen and tested by a trained otologist, both before and after treatment, in which he alleges substantial improvement to have taken place? If not, I suggest his endeavouring to find an experienced otologist who could be induced to consent to collaborate with him, in his future aural ventures, if he would overcome the scepticism of authority.

Although I have stated without misplaced modesty and timidity what I believe to be the position of authority, I admit that there is just a possibility—almost a forlorn hope—that authority may be in error here and Mr. Nesfield may be right and therefore a genuine benefactor to sufferers from obstinate obstructive catarrhal deafness.

I am, Sir, yours faithfully,

London, W., Jan. 3rd. WILLIAM HILL.

To the Editor of THE LANCET.

SIR,—In his book, "Otitis Media (Mastoid Disease)," which I have seen for the first time, Mr. Heath says

(p. 4): "Mastoid disease is one of the commonest ailments with which our army is troubled." I was the surgical specialist of the Lucknow Division as long ago as 1906, and so naturally saw a great deal of mastoid disease, as aural surgery, particularly mastoid disease, was not separated from general surgery. A civil surgeon in the old Indian Medical Service could not be a specialist; he had to deal with every branch of medicine and surgery, and be an expert in every department. As a matter of fact, specialism quite often impedes advance, as it limits scope and cramps the horizon. This may possibly be the reason that general surgeons have been responsible for outstanding advancements in the special branches—e.g., enlargement of the prostate, stone in the bladder, cataract, and so forth.

Acute mastoids are naturally a common emergency, and so I have had to operate on many hundreds. In 1901 I was taught Stacke's operation at St. Mary's Hospital. But before 1906 I, like many other surgeons, attempted to preserve the hearing in acute mastoid disease by draining the middle ear through the mastoid without destroying the eardrum and ossicles. I was in India in 1906, and did not know of Mr. Heath's article in your journal, but the important point is that *Mr. Heath's operation is for otitis media, otorrhœa, and perforation of the ear-drum.* He says: "... I exhibited 10 cases ... their perforated drums had healed." That his operation is for mastoiditis is clearly demonstrated by the advertisement of his book on the cover of THE LANCET. My attempt has been to alleviate deafness by operating on patients with normal ear-drums, and whose middle ears are not inflamed or purulent.

Wilde, Schwartze of Haale (1873), Stacke (1892), Ballance and Macewen were, I believe, the pioneers who taught us to gouge through the mastoid to hidden pus, and clear away all diseased bone. My aim has been to bore through the mastoid with as little injury as possible to the mucous membrane of the air cells, so as to produce a membrane-lined channel connecting the middle ear with the external auditory canal—i.e., *in effect to make a new Eustachian tube.* It must be clearly understood that I make this channel on ears healthy except for deafness. I know that to improve deafness in such cases Mr. Heath's treatment has not been to operate but to blister the ear-drum, because some of these (blistered) patients have since come to me, and I have made on them the channel I describe, and have alleviated their deafness.

Mr. Barford has been most kind, and I appreciate his remarks. Nearly all my cases have been frequently catheterised, and an attempt made to open their Eustachian tubes with bougies. Here again one has to recognise that the Eustachian tube opens into a small closed space (the middle ear), so that air is blown into a closed tube. It is, therefore, not surprising that mucus is not dislodged, and, if dislodged, is blown into the middle ear. On the other hand, when a channel has been made connecting the middle ear and the external auditory canal, air can most easily be blown right through the Eustachian tube and middle ear out of the external auditory meatus. For my part I prefer passing a stream of mild antiseptic fluid from the external auditory meatus through the middle ear and Eustachian tube into the pharynx.

The operation, if performed with phenolaine (a local anæsthetic), and very light chloroform anæsthesia is without risk. Why should we therefore hesitate to operate when the usual remedies of nasal douches, nasal operations, removal of tonsils and adenoids, catheterisation, &c., of the Eustachian tubes fail? I shall always be pleased to demonstrate cases.

I am, Sir, yours faithfully,

V. NESFIELD, F.R.C.S.,
Major, I.M.S. (ret.).

Sandhurst, Kent, Jan. 2nd.

AURAL SYSTEMIC INFECTION.

To the Editor of THE LANCET.

SIR,—Dr. R. D. Owen's article in your issue of Dec. 31st, 1927, prompts me to record that the treatment which I have found of the greatest value in such cases is the administration of *Scarlet Fever* Antistreptococcus serum (P., D. and Co.). I used this first in April, 1927, in a case of blood infection with hæmolytic streptococcus from an acute mastoiditis, and the effect can only be described as miraculous. Since that date I have used the serum in other cases, always with satisfactory result; it should be noted that the cases to which I refer were patients where there was no question of scarlet fever. I need not here go into details of these cases, as I hope shortly to publish a full account. Meantime I wish to emphasise the value of this treatment in the hope that others may find it helpful. Large doses may be given; in my first case so treated the serum was given intravenously in doses of one million units, repeated daily for ten days.

I am, Sir, yours faithfully,

H. ROSS SOUPER,
Aural Surgeon, Royal Aberdeen Hospital for Sick Children.

Dec. 31st, 1927.

To the Editor of THE LANCET.

SIR,—Dr. Owen has described a fairly typical case of systemic infection occurring in the course of mastoiditis. He would have been saved considerable anxiety as to the condition of the lateral sinus if he had carried out a small point of operative technique, which I have advocated elsewhere. In such cases, the lateral sinus should be freely exposed at the primary operation for half an inch or more, so that its subsequent state can be easily observed through the mastoid wound. If pulsation be observed during the periods of high temperature it is certain that thrombosis in the sinus is not present, and hence ligation of the jugular vein in the neck is unnecessary.

I am, Sir, yours faithfully,

HAROLD KISCH.

Wimpole-street, W., Jan. 2nd, 1928.

WELFARE OF THE BLIND.—In view of the continued development of work among the blind owing to the operation of the Blind Persons Act, 1920, and the new problems constantly arising in connexion with this service, the Minister of Health has reappointed the Advisory Committee on the Welfare of the Blind for a further period of office. The Committee has been constituted so as to afford representation to the local authorities concerned with the working of the Blind Persons Act, 1920, and to voluntary agencies for the blind, as well as to organised blind workers. The chairman is the Right Hon. G. H. Roberts, and among the members are Dr. J. J. Butterworth, Dr. R. A. Lyster, and Dr. H. A. Powell. Mr. F. M. Chapman, of the Ministry of Health, will act as secretary.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—On Wednesday, Jan. 11th, at 3 P.M., at the Royal Eye Hospital, St. George's-circus, Mr. Griffith will give the first of a series of clinical demonstrations. On Jan. 26th, at 1.30 P.M., at St. Bartholomew's Hospital, Sir Thomas Horder will give a medical demonstration, and on Jan. 23rd, at 2 P.M., at the Queen Mary's Hospital, Stratford, Mr. A. E. Mortimer Woolf will give a surgical demonstration. On Monday, Jan. 16th, at 5 P.M., Sir James Purves-Stewart will lecture on Acute Drunkenness. This lecture and demonstrations are free to members of the medical profession. From Jan. 9th, for a fortnight, from 10.30 A.M. to 5.30 P.M., at the North-East London Post-Graduate College (Prince of Wales's General Hospital, Tottenham) a special course will be held in medicine, surgery, and special department work, and will consist of demonstrations, ward-rounds, lectures, and operations. Between the same dates a course in diseases of children, organised by Dr. Bernard Myers, will be held at the Children's Clinic, the National Heart Hospital, the Royal Waterloo Hospital, the Hospital for Consumption, Brompton, and the Royal National Orthopædic Hospital, and will occupy most mornings and afternoons. From Jan. 16th–27th, at the National Hospital for Diseases of the Heart, an all-day course will be given (entries limited to 20), and from Jan. 17th to Feb. 11th, on Tuesdays and Saturdays, at 11 A.M., at the Bethlem Royal Hospital there will be a course of lecture-demonstrations on psychological medicine. Information, syllabuses, tickets, and copies of the *Post-Graduate Medical Journal* may be had from the Secretary of the Fellowship at 1, Wimpole-street, London, W. 1.

Obituary.

SIR PERCY BASSETT-SMITH, K.C.B., C.M.G., F.R.C.P. LOND., F.R.C.S. ENG.

WE regret to chronicle the death of the distinguished naval officer and pathologist, Rear-Admiral Sir Percy Bassett-Smith, which occurred on Thursday, Dec. 29th, in his sixty-seventh year.

Percy Bassett-Smith was the son of Mr. William Bassett-Smith, of St. Albans, and received his general education at St. John's College, Hurstpierpoint. He entered the Middlesex Hospital as a young medical student, qualified as L.S.A., served the hospital as house physician to Sir Richard Douglas Powell, and entered the Naval Medical Service in 1883 at the age of 22, having now obtained the English double qualification; those who knew him personally will reflect that he must have looked a small lad for the responsibilities with which his commission endowed him. His opportunities of active service began before those of his actual contemporaries in age, for he served in the Egyptian Expedition despatched to re-establish the authority of the Khedive in 1882, and, his ship being engaged in military and naval operations during the next two years, he obtained the Egyptian medal and the Khedive Star. His successful start was followed by appointments in which he showed striking qualities of scientific as well as official nature; he obtained the Gilbert Blane gold medal for the best journal kept by an officer in medical charge of a warship, and in 1899 he was specially promoted fleet-surgeon. In the following year he was appointed lecturer on tropical medicine and hygiene at Haslar, where much of the research work was done that later formed the subject of valuable writing.

SIR PERCY BASSETT-SMITH.

Photograph by Elliott & Fry.

In 1906, having taken the tropical diploma at Cambridge, he won the Cragg's prize awarded for original research work by the London School of Tropical Medicine. In 1911 he was made C.B., and in 1912 was appointed professor of pathology and lecturer on tropical medicine at the Royal Naval College, Greenwich. This post he held for nine years, when he retired with the rank of surgeon rear-admiral and was created K.C.B., while his professional position had been recognised during his tenure of the post by election in 1916 both as F.R.C.P. Lond. and F.R.C.S. Eng. In 1918 he received the C.M.G.

The cessation of official connexion with the Admiralty left him free to practise as a consultant physician. He was immediately appointed to the staff of the City of London Hospital for the Diseases of the Chest and Lungs, and after three years as assistant physician he received charge of wards, so that his energy and enthusiasm received a full outlet. He had joined the staff at an age when most men would have considered that they had earned a rest, but he threw himself into the new duties with zeal and devotion, as was well displayed in his action, after appointment as in-patient physician, in voluntarily continuing his out-patient work. For this purpose he went down to the hospital regularly every Saturday afternoon, and when the artificial sunlight department was opened at the institution he added the supervision of this to his other responsibilities. His long experience at Greenwich made him keenly interested in all developments of clinical pathology, and any new laboratory test, which had a reasonable claim upon attention, was sure of open-minded reception from him. One of his colleagues writes: "Sir Percy was a man of quick and ready sympathies, and was always ready to help. A generous kindness characterised everything he did, and the writer never knew him to pass an uncharitable judgment." That summary of Bassett-Smith as a hospital officer may be applied to his general activity in public affairs. On the Council of Epsom College he was a regular attendant, an advocate of all developments of the institution as a public school, and a kindly scrutineer of the claims for scholarships and pensions.

He served for two years as President of the Royal Society of Tropical Medicine and Hygiene, and was tropical specialist to the Appeal Board of the Ministry of Health. No text-book came from him, and his writings were based entirely upon his work in the Navy. In this way he acted for a time as assistant editor of the *Bulletin of Tropical Disease*, issued by the Bureau of Hygiene and Tropical Diseases, and made many useful contributions to medical literature through this and various journals and medical systems. He wrote on the poisons of snakes and fishes in the "Encyclopædia Medica"; on undulant fever in Byam and Archibald's "Practical Medicine in the Tropics," in THE LANCET, and in the *Journal of Tropical Disease and Hygiene*; and on parasitic splenomegaly in the *British Medical Journal*. The three last papers from his pen were published in our columns—The Carriers of the Meningococcus: A Year's Record, in 1918; The Preservation of Lemon Juice in 1920; and Prevention of Scurvy in the Navy, 1921. All three papers exhibit similar qualities of care, accuracy, and inclusiveness; the last, which was read before the War Section of the Royal Society of Medicine, was a practical contribution to our knowledge of the prophylaxis of scurvy. Bassett-Smith, in fact, placed both the Navy and Army in his debt by his work in preparing the efficient and portable antiscorbutic remedy which he exhibited in lozenge form to the Society.

One who as a colleague was familiar with Bassett-Smith's ideals and conduct of work writes as follows:—

Sir Percy Bassett-Smith will be missed by many, as there were many who were glad to call him friend. There was a good deal of the sailor about him, for, although he spent most of his life in hospitals and laboratories ashore, he carried with him a certain cheeriness and breeziness which endeared him to his colleagues. An affectionate regard led to his being often called the "little gentleman," and the title was well bestowed. He was a man who never stooped to anything mean or underhand, nor did he speak evil of his neighbours. He was a friendly soul, full of vigour, persistence, and energy, and it was these qualities of mind and body, together with a ripe experience and a sound and sane outlook on life, which led to his success in various directions. To him idleness was abhorrent and when, much to his sorrow, he had to give up his life's work in the Navy, where, by the way, he gained for himself a unique position, he plunged into a maze of activities, examining and treating patients, examining students in tropical medicine, continuing his duties as sectional editor for the Bureau of Hygiene and Tropical Diseases, taking a prominent share in the work of the Royal Society of Tropical Medicine and Hygiene, of which for two years he was President, much to his joy and satisfaction, lecturing, attending meetings and demonstrations and keeping himself generally abreast of the times. He was not a good public speaker; he had no great

facility with the pen, but he had a thorough knowledge of the subjects in which he was specially interested, notably undulant fever and the deficiency diseases, a good general knowledge of laboratory and clinical work, and he never spared himself. Above all he had, like the service to which he was proud to belong, a great and abiding sense of duty, and so he earned the liking and respect of his fellows and rose to high office amongst them. He died in harness, as no doubt he would himself have chosen, for he would have dreaded any approach to the stage of the "slippered pantaloon"; but his loss will be severely felt in those circles wherein he moved and where, as the "little gentleman," he was ever welcome.

Sir Percy Bassett-Smith married Constance, daughter of the Rev. F. Hastings, who died two years ago, by whom he leaves two daughters. His death took place at St. John's Hospital, Lewisham, and was the result of septicæmia incurred at a post-mortem examination.

MICHAEL JOSEPH MAHONY, D.S.O., M.D. N.U.I.

Dr. Mahony died on Dec. 23rd at his home at Stoneycroft, Liverpool, where he had practised for some 35 years and had gained the affection of a large circle. Born at Waterford, the son of Mr. Richard Mahony, he was educated at St. Vincent's College, Castleknock, and graduated in medicine in the Royal University of Ireland in 1890. Two years later he started practice in Liverpool, and in the South African war he held a combatant commission in the Liverpool Volunteers, being awarded the Queen's medal and three clasps. After the war he remained for some time in South Africa, but eventually returned to Stoneycroft to his ever-increasing practice, and to his public work in connexion with numerous institutions in the neighbourhood. These included the Hospice for the Dying in Liverpool, of which he was one of the founders. On the outbreak of the late war Dr. Mahony went to France as major in the Royal Army Medical Corps (Territorials) attached to the 9th King's Liverpool Regiment. At the end of 1915 he was invalided home but later rejoined for service on the Somme with the 5th battalion. He was one of the first three officers of the 55th Division to be recommended for the D.S.O., which he received in 1917, and in addition he was twice mentioned in despatches, and was awarded the Médaille de reconnaissance française (en argent).

Dr. Mahony's death followed closely on that of his father, and they were buried together at West Derby on Dec. 27th with military honours.

ARTHUR GOULSTON, M.D. CAMB.

Dr. Arthur Goulston, who died at Charlcombe Rectory, Bath, on Dec. 22nd, received his medical education at Cambridge and St. Thomas's Hospital, and after qualifying as M.R.C.S. Eng. in 1888, settled in practice at Exeter. In 1911, 23 years after qualification, he graduated as M.B. Camb., and in the following year proceeded to the M.D. degree with a thesis on the beneficial effects of cane sugar on the myocardium in certain forms of heart disease. In this subject he had interested himself for some eight years, and he published a number of articles expounding the favourable views he formed. In 1914 these were further set out in a book entitled "Cane Sugar and Heart Disease," in which he explained that he had first tried the treatment because sugar was used in the German army and amongst Alpine climbers to combat undue cardiac strain. His clinical investigations brought him the Hunterian Society's medal in 1912. He remained in general practice at Exeter until some six years ago, when he moved to London. Dr. Goulston held the Volunteer Decoration. Last year he retired and went to live at Bath.

WE are asked to state that the Central Information Bureau, which has its offices in the Kaiserin Friedrich-Haus, Berlin, N.W. 6, Luisenplatz 2/4, gives information free of charge in all matters relating to medical questions in Germany.

Medical News.

UNIVERSITY OF LONDON.—At a meeting of the Senate held on Dec. 14th, 1927, it was resolved to institute a chair of chemistry as applied to hygiene, and a chair of public health, both tenable at the London School of Hygiene and Tropical Medicine.

University College.—A course for the Diploma of Public Health opens early this month. Details may be had from the Secretary.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—Six Hunterian lectures on Factors Concerned in the Growth of the Human Body will be delivered in the theatre of the College, Lincoln's Inn-fields, by Sir Arthur Keith, F.R.S., Conservator of the Museum, at 5 P.M., on Mondays, Wednesdays, and Fridays, Jan. 16th, 18th, 20th, 23rd, 25th, and 27th.

CONFERENCE ON RHEUMATIC DISEASES.—A conference on rheumatic diseases is to be held at Bath on May 10th and 11th. Sir George Newman will act as President of the conference, of which the three sessions will be devoted respectively to social aspects, causation, and treatment. The local hon. medical secretary is Dr. Vincent Coates, 10, Circus, Bath.

ROYAL INSTITUTE OF PUBLIC HEALTH.—A course of lectures on Problems of Forensic Medicine will be given at the Institute, 37, Russell-square, London, W.C. at 4.30 P.M., on Wednesdays, from Jan. 18th to March 14th. The lecturers will be: Mr. Roland Burrows, Dr. Godfrey Carter, Dr. Nathan Raw, Dr. Norwood East, Dr. W. M. Feldman, Dr. Whitley MacFall, Sir Robert Armstrong-Jones, Dr. Roche Lynch, and Dr. Robert Donaldson. Particulars will be found each week in our Medical Diary. Students and members of the medical profession are invited to attend.

ORTHOPÆDICS AT BIRMINGHAM.—Two years ago the Birmingham Cripples' Union and the Royal Orthopædic Hospital were amalgamated under the cumbrous title of "The Birmingham Cripples' Union and Royal Orthopædic and Spinal Hospital (Amalgamated)." The designation has now been altered, with the King's permission, to "The Royal Cripples' Hospital, Birmingham."

PRESERVATIVES IN FOOD.—The Public Health (Preservatives, &c., in Food) Regulations came into force on Jan. 1st so far as they relate to butter, cream, and articles of food containing preserved bacon, ham, egg yolk, or cream. As it may not be practicable to get rid of all stocks of preserved butter at once the Minister of Health has suggested to local authorities that they should refrain from instituting legal proceedings during the first few weeks of the year, if they are satisfied that reasonable efforts have been made to clear old stocks.

HUNTERIAN SOCIETY.—The Hunterian lecture will be given at 9 P.M. on Monday, Jan. 16th, by Dr. Howard Kelly, of Baltimore, U.S.A., who has chosen to speak on Emergent Gynæcology. The annual dinner will be held on Thursday, Feb. 9th, at the Hotel Victoria, and the Hunterian oration will be given on Monday, Feb. 27th, at the Mansion House by Dr. Anthony Feiling. His subject will be Sciatica—Its Varieties and Treatment. On Monday, March 19th, at 7.30 P.M., there will be a dinner meeting at Simpson's Restaurant, Cheapside, when Dr. Robert Hutchison and Sir Farquhar Buzzard will open a discusson on Hiccup. The last fixture of the season will be the annual general meeting on April 23rd.

ROYAL SOCIETY OF MEDICINE.—The new session promises combined discussions on a number of important topics, among them the influence of naso-aural sepsis on the lungs and gastro-intestinal tract (Jan. 11th), in which the three sections of Laryngology, Medicine, and Odontology will take part, and a special discussion on cutaneous mycosis in the tropics (Jan. 25th), arranged jointly by the sections of Tropical Diseases, Dermatology, and Comparative Medicine, to which members of the War Section are specially invited. At the Section of Psychiatry on Jan. 10th Dr. William Brown will read a paper on theories of suggestion. At the Section of Electrotherapeutics on Jan. 20th Prof. Sidney Russ and Dr. T. F. Cotton will introduce a discussion on diathermy in relation to circulatory disturbances, and on Jan. 27th Dr. J. E. McCartney will make some observations on diphtheria carriers to the Section of Epidemiology. The next social evening will, as already announced, be held on Monday, Jan. 16th, when Dr. Jane Walker will give an illustrated address entitled Saints, Medicine, and Surgery. The Secretary of the Society will be glad to receive the names of Dominion and foreign physicians who are visiting this country, in order that invitations to attend the social evening may be sent to them.

SOCIETY FOR THE STUDY OF INEBRIETY.—At 4 P.M. on Tuesday, Jan. 10th, at the rooms of the Medical Society of London, 11, Chandos-street, W., Prof. Hugh MacLean will open a discussion on Alcohol and Alcoholism in Relation to Problems of Nutrition and Health. Members and Associates may introduce visitors.

LECTURES ON INFANT CARE.—A course of advanced lectures especially intended for creche nurses and probationers have been arranged by the National Association for the Prevention of Infant Mortality and the National Society of Day Nurseries, and will be held on Thursdays, from 7.30 to 8.30 P.M., from Jan. 12th to March 15th, at Carnegie House, 117, Piccadilly, London, W.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.—The first meeting of this year will be held at 5 P.M. on Jan. 20th, when Dr. Walter Elliot, M.P., and Prof. R. H. A. Plimmer will speak on Recent Advances in the Knowledge of Food. On Feb. 17th, at the same hour, Dr. G. F. Buchan and Dr. A. F. Cameron will open a discussion on the Control of Small-pox, and on April 20th Sir Robert Philip, Dr. W. M. Willoughby, Prof. E. L. Collis, and Prof. Major Greenwood will address a general meeting at Bath on the Causes of the Decline in Tuberculosis Mortality. The first two meetings will be held at 1, Upper Montague-street, Russell-square, London, W.C.

MEDICAL SOCIETY OF LONDON.—The spring session opens on Monday, Jan. 9th, with a pathological evening; a fortnight later the treatment of pernicious anæmia will be introduced by Prof. F. R. Fraser and discussed by Sir William Willcox and Dr. Herbert French. Other subjects on the agenda for Monday evening meetings are the use and abuse of ultra-violet therapy, the scope of surgery in the treatment of chronic rheumatoid and osteo-arthritis, the carrier problem, and recent advances in the treatment of cancer of the cervix uteri. On three evenings in February and March Dr. F. J. Poynton will deliver the Lettsomian lectures on rheumatic heart disease in childhood. The annual dinner will be held at the Trocadero Restaurant on Thursday, March 8th, while the session will finish up with the general meeting on Monday, May 14th, when Sir Archibald Garrod will deliver an oration entitled Lessons on Rare Maladies.

ROYAL SOCIETY.—Applications are invited for a Foulerton Research Professorship, tenable for five years and renewable for further periods. The holder will be expected to undertake original research in medicine or the contributory sciences, on lines approved by the committee of the Foulerton Research Fund. In awarding professorships the chief consideration will be the candidate's ability rather than the subject of his research. The professor will devote his whole time to investigation, except that he may give a limited course of instruction to advanced students; in special cases, however, the holder of a paid academic or other scientific appointment may be elected, provided that the duties of this appointment are only subsidiary to those of his Foulerton professorship. Members of all nationalities and both sexes are eligible, and applications must reach the Society not later than Sept. 30th. Further particulars may be found in our advertisement columns.

JAMES MACKENZIE INSTITUTE FOR CLINICAL RESEARCH.—At a meeting held on Dec. 6th, 1927, Sir George Lenthal Cheatle read a paper entitled Some Recent Views on Carcinoma as Applied to the Colon. He described two types of epithelial hyperplasia which he had found in his research on the breast. The first type, associated with increase in peri-canalicular and peri-acinous connective tissue, was seen in the breast of the newly-born infant and at puberty and might therefore be regarded as physiological. He protested against the use of the term chronic mastitis in this connexion, since the condition was not inflammatory. He did not agree that this hyperplasia was secondary to increased vascularity, but considered that the increased vascularity present was the result of greater functional activity. In the second type of hyperplastic change the epithelial cells tended to heap themselves upon one another, and this process led to the formation of cysts and papillomata. In the colon he had been unable to discover anything comparable to the first type, but the second type of overgrowth was common. In the breast and colon such papillomata might be innumerable and they were commonly associated with carcinoma. The epithelial activity was, in his opinion, always the essential change. A cell, having taken on the malignant character, invaded surrounding tissue and at this stage the invasion was the only proof of its malignancy. The lecturer described the following types of spread in the colon: (*a*) limited spread in the submucous lymphatics; (*b*) direct spread of epithelial cells in the circumrectal fat; (*c*) embolic spread (rarely); (*d*) diffuse explosive local spread in all tissues; and (*e*) invasion of radicals of proctal vein. The last of these, he said, explained the frequent invasion of the liver in carcinoma of the bowel.

SOCIETY OF APOTHECARIES OF LONDON.—A Livery Dinner of this Society was given on Tuesday, Jan. 3rd, to the Lord Mayor of London and Sheriffs, when occasion was made for the presentation to Sir F. Gowland Hopkins of the Society's medal for distinguished therapeutic research. The Master, Dr. R. Whiteside Statham, presided, supported by Lieut.-Colonel C. T. Samman, R.A.M.C., and Dr. H. J. Ilott, the Wardens.

After the loyal toasts, the Master proposed the health of the Lord Mayor, Sir Charles Batho, associating the Sheriffs with his words. He briefly narrated some points in the history of the Society, and explained how it came to lose its place among "the great twelve," although ancient descent could be claimed for it from the herb merchants of biblical days, while the name apothecary was derived from Galen's word for a herb repository. The incorporation of the Society actually dated, he said, from the reign of James I. whose apothecary, Gideon Delaune, was the principal medium for securing the charter and finding the money for the original hall. He reminded the audience that the bust on the bracket at the upper end of the hall represented this famous man, who is reported to have lived till the age of 97, and to have married in middle life and been the father of 37 children by one spouse. The Master closed his speech by referring to the activity of the Society in instituting a diploma in midwifery, the arrangements for which were now complete.

The Lord Mayor and Mr. Sheriff Davenport having replied, the Master then presented the gold medal of the Society for his work on nutrition to Sir Gowland Hopkins. He described him as our greatest living biochemist, filling the first university chair in that subject which had recently been instituted at Cambridge, and referred to the spread of exact knowledge in regard to diet that had followed upon the discovery of the vitamins from A to E. He hoped that the dinner that evening had been properly selected in respect of vitamins.

Sir Gowland Hopkins, in returning thanks for the medal, disclaimed having done any work in respect of vitamin E, but said that from experiments on rats the presence of this vitamin appeared to quadruple procreative powers. Speaking generally of the subject of nutrition, he held that no section of the human race had ever been properly nourished, whether we were considering aborigines who ate berries or, at the other end of the scale, the feasts of city magnates. The vitamins were certainly well represented at the present dinner in quantity, if not in distribution. He held that the disabilities of man, due to age-long malnutrition, were undoubted, and that the whole subject of nutrition formed urgent material for research.

Colonel Samman, in proposing the health of the guests, made special mention of Sir Frederic Hallett, whom he congratulated on his recent honour, calling his work in the cause of medical education admirable and far reaching. He associated with the toast Dr. Graham Little, Member of Parliament for the University of London, and Mr. Briscoe, Master of the Worshipful Company of Armourers and Brasiers.

Dr. Little, in reply, told of the progress of the University of London, and suggested that the City Companies should turn their attention to their own university rather than to the provincial institutions, for each of the Companies might very well endow the University with a chair or scholarship associated with their own titles. He suggested to the Master of the Cutlers Company, Dr. Atwood Thorne, and to the Master of the Butchers Company, Mr. Killby, who were among the guests, that a chair in operative surgery would be appropriate.

The speeches were interspersed with some charming singing by the Chauntry Gleemen.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

TUESDAY, Jan. 10th.—5 P.M., THERAPEUTICS. 8.30 P.M., PSYCHIATRY. Paper: Dr. William Brown: Theories of Suggestion.

WEDNESDAY.—8.15 P.M., LARYNGOLOGY, MEDICINE, ODONTOLOGY. Special Discussion on the Influence of Naso-oral Sepsis on the Lungs and Gastro-intestinal Tract. Openers: Mr. E. D. D. Davis and Mr. C. A. S. Ridout (for the Section of Laryngology), Dr. R. A. Young and Dr. T. Izod Bennett (for the Section of

Medicine). Mr. J. G. Turner and Mr. A. Bullejd (for the Section of Odontology).

THURSDAY.—8 P.M., NEUROLOGY. Clinical Meeting at the National Hospital, Queen-square, W.C.

FRIDAY.—5.30 P.M., CLINICAL. (Cases at 5 P.M.) Cases: Dr. F. Parkes Weber: (1) Non-operated Mammary Carcinoma of Fifteen Years' Duration in a Woman with Strongly Positive Wassermann Reaction. Dr. Bernard Myers: (2) Specimens from a Case of Erythro-leukæmia. Dr. Philip Figdor: (3) A Case of Congenital Heart Disease. Other cases will be shown. 8.30 P.M., OPHTHALMOLOGY. (Cases at 8 P.M.) Papers, &c.: Mr. W. Stewart Duke-Elder: Factors Controlling Intra-ocular Pressure. Mr. Montague L. Hine: Report on a Case of Neurofibromatosis of the Eyelid and of an Artificial Eye which Burst in the Socket. Mr. E. Wolff: A Bend in the Sixth Cranial Nerve and its Clinical Significance (Anatomical Specimen).

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY, Jan. 9th.—8.30 P.M., Pathological Evening.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, London, W.

MONDAY, Jan. 9th, to SATURDAY, Jan. 14th.—ROYAL EYE HOSPITAL, St. George's Circus, S.E. Special Clinical Demonstration in Ophthalmology. Tues., at 3 P.M., by Mr. Griffith. Free to members of the medical profession.—PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, N. Post-graduate course in medicine, surgery, and the special departments. Demonstrations, lectures, ward rounds, and operations.—CHILDREN'S CLINIC, and other hospitals. Post-graduate course in diseases of children, mornings and some afternoons.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, W.

MONDAY, Jan. 9th.—10 A.M., Dr. Dowling: Skin Department. 11 A.M., Mr. Tyrrell Gray: Surgical Wards. 2 P.M., Dr. Trevor Davies: Gynæcological Department. 4.30 P.M., Dr. Carmichael Low: Dysentery (lecture).

TUESDAY.—2 P.M., Dr. Shaw: Medical Out-patients. 2 P.M., Mr. Sinclair: Surgical Out-patients.

WEDNESDAY.—10 A.M., Dr. Burnford: Medical Wards. 2.30 P.M., Mr. Donald Armour: Surgical Wards.

THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Department. 2 P.M., Mr. MacDonald: Genito-urinary Department. 2 P.M., Mr. Bishop Harman: Eye Department.

FRIDAY.—10 A.M., Dr. Pritchard: Special Medical Treatment Clinic. 2 P.M., Mr. Vlasto: Throat, Nose and Ear Department.

SATURDAY.—10 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Owen: Medical Diseases of Children.

Medical and Surgical Out-patients, Operations, Special Departments, daily, 10 A.M. to 5 P.M., Saturdays, 10 A.M. to 1 P.M.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.

THURSDAY, Jan. 12th.—5 P.M., Dr. J. M. H. MacLeod: Ringworm Infections.

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL, Gray's Inn-road, W.C.

WEDNESDAY, Jan. 11th.—4 P.M., Consultations and Demonstrations of Interesting Cases.

FRIDAY.—4 P.M., Mr. A. Ryland: Demonstrations of Museum Specimens.

ROYAL NORTHERN HOSPITAL, Holloway-road, N.

TUESDAY, Jan. 10th.—3.15 P.M., Dr. W. H. McKinstry: Pathological Specimens. Dr. P. O. Ellison: Clinical Pathology.

ST. MARY'S HOSPITAL, Whitworth-street West, Manchester.

FRIDAY, Jan. 13th.—4.30 P.M., Dr. Fletcher Shaw: Ante-partum Hæmorrhage.

Appointments.

COCHRANE, H. L., M.B., B.Ch. Belf., has been appointed House Surgeon, Royal Infirmary, Oldham.

NOON, C., F.R.C.S. Eng., Hon. Surgeon to the Patrick Stead Hospital, Halesworth, Suffolk.

YULE, J., M.B., Ch.B. Glasg., D.P.H., Assistant Port Medical Officer, Hull and Goole Port Sanitary Authority.

Vacancies.

For further information refer to the advertisement columns.

All Saints' Hospital for Genito-Urinary Diseases, 49–57, Vauxhall Bridge-road, S.W.—Res. Sen. H.S. At rate of £200.

Birmingham City.—Sen. Asst. M.O.H. £1100.

Central London Ophthalmic Hospital, Judd-street, W.C.—Two Out-patient Officers. Each £150. Also Jun. H.S. At rate of £50.

City of London Hospital for Diseases of the Heart, Victoria Park, E.—P. to Out-patients.

Connaught Hospital for Walthamstow, Wanstead, and Leyton, Orford-road, E.—Hon. P.

Croydon County Borough.—Asst. M.O.H., &c. £600.

Derby, Derbyshire Royal Infirmary.—Hon. Gynæcologist.

Exeter, Royal Devon and Exeter Hospital.—Sen. H.S. £200.

Freemasons' Hospital and Nursing Home, 237, Fulham-road, S.W.—Res. M.O. At rate of £250.

Glasgow, Lightburn Joint Hospital, Shettleston, near Glasgow.—Res. Med. Supt. £300.

Glasgow Royal Cancer Hospital.—Cancer Research Worker. £800.

Hospital for Consumption and Diseases of Chest, Brompton, S.W.—H.P. £50 for six months.

Hospital for Tropical Diseases, Endsleigh-gardens, W.C.—Hon. Asst. P.

Ipswich, East Suffolk and Ipswich Hospital.—Cas. O. £150.

Leeds Public Dispensary.—Jun. Res. M.O. £150.

Lincoln, The Lawn.—Med. Supt. £700.

Lowestoft, Suffolk, S. Luke's Hospital.—Jun. Asst. M.O. £500.

Manchester, Ancoats Hospital.—H.S. £100. Also Res. M.O. £150.

Manchester Royal Eye Hospital.—Two Jun. H.S.'s. Each £120.

Manchester Royal Infirmary.—Asst. M.O. £35.

Manchester, St. Mary's Hospitals.—Three H.S.'s. Each at rate of £50.

Margate, Royal Sea Bathing Hospital for Surgical Tuberculosis.—Two H.S.'s. Each at rate of £200.

Middlesex Hospital Medical School, W.—Medical Registrarship. Also Obstetric and Gynæcological Registrar. Each £300.

Midlothian, West Lothian and Peebles Counties.—M.O.H. £900.

Norwich City.—Clinical Tuberculosis Officer, &c. £750.

Nottingham Children's Hospital.—Res. H.S. At rate of £150.

Oldham County Borough.—Res. Asst. M.O.H. £450.

Portsmouth City Mental Hospital.—Second Asst. M.O. £525.

Royal Air Force, Medical Branch.—Med. Offs.

Royal Army Medical Corps.—Limited number of Commissions.

Royal London Ophthalmic Hospital, City-road, E.C.—Asst. Surg.

Royal Naval Dental Service.—Five Dental Officers.

Royal Society, Burlington House, W.—Second Foulerton Research Professor. £1400.

St. John's Hospital for Dis. of Skin, 49, Leicester-square, W.C.—Pathologist. £150.

St. Mark's Hospital for Cancer, &c., City-road, E.C.—H.S. At rate of £75.

St. Pancras Dispensary, 39, Oakley-square, W.C.—Res. M.O. £185.

Shanghai Municipal Council, Public Health Dept.—Asst. Pathologist. 600 Taels per mensem.

South London Hospital for Women, Clapham Common, S.W.—Clin. Assts.

Swindon Borough.—Asst. M.O.H. £600.

Sydney, Australia, Royal Prince Alfred Hospital.—Pathologist. £700.

Taunton and Somerset Hospital.—Sen. and Jun. House M.O.'s. At rate of £150 and £100 respectively.

Tonbridge Union Institution, Pembury, near Tunbridge Wells.—Res. Asst. M.O. £275.

Ventnor, Isle of Wight, Royal National Hospital for Consumption and Diseases of Chest.—Jun. Res. M.O. At rate of £300.

Victoria Hospital for Children, Tite-street, Chelsea, S.W.—H.P. and H.S. Each at rate of £100. Also two Out-patient Anæsthetists. 10s. 6d. per attendance.

Watford Peace Memorial Hospital.—Res. M.O. At rate of £150.

West End Hospital for Nervous Diseases, Gloucester Gate, Regent's Park, N.W.—Sen. H.P. At rate of £150.

Woolwich and District War Memorial Hospital, Shooters Hill, S.E.—H.S. and H.P. Each £125.

The Chief Inspector of Factories announces vacant appointments for Certifying Factory Surgeons at Bracknell (Berks), Dollar (Clackmannanshire), and Holyhead (Anglesey).

The Secretary of State for the Home Department gives notice of a vacancy for a Medical Referee under the Workmen's Compensation Act for the districts of the Blandford, Bridport, Dorchester, Ringwood, Lymington, Poole and Bournemouth, Wareham, Weymouth, and Wimborne Minster County Courts. Applications from practitioners living in or near Dorchester or Weymouth should reach the Private Secretary, Home Office, Whitehall, London, S.W. 1, not later than Jan. 20th.

Births, Marriages, and Deaths.

BIRTHS.

COLLYNS.—On Dec. 23rd, 1927, the wife of Dr. P. C. Collyns, Dulverton, Somerset, of a son.

JONES.—On Dec. 21st, 1927, at Old Court, Ealing, W., the wife of Dr. W. Hewitt-Jones, of a son.

DEATHS.

ALLDEN.—On Dec. 26th, 1927, at Northgate House, Beccles, John Horatio Allden, M.R.C.S., L.R.C.P., aged 75.

BASSETT-SMITH.—On Dec. 29th, 1927, Surgeon Rear-Admiral Sir Percy Bassett-Smith, K.C.B., C.M.G., of 3, Aberdeen-terrace, Blackheath, S.E.

DENNY.—On Dec. 20th, 1927, at Ashfield-place, Debenham, Dr. Arthur William Denny, aged 58.

HARRIS.—On Dec. 25th, 1927, in London, Spencer Clabon Harris, L.R.F.P.S., L.M., L.S.A., late M.O.H. Ely, aged 73.

MILLER.—On Dec. 31st, 1927, suddenly, at Craiglinnhe, Fort-william, Lieut.-Colonel Alexander Cameron Miller, M.D., F.R.S.E.

TULK.—On Dec. 30th, 1927, at Poole, Dorset, Marmaduke James Tulk, M.D., M.R.C.S., aged 74.

WARREN.—On Dec. 26th, 1927, at Weston-super-Mare, Charles Edward Henderson Warren, M.B., M.R.C.S., aged 73.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

THE DISCOVERY OF THE ANÆSTHETIC POWERS OF NITROUS OXIDE.

By George Parker, M.D. Camb.,
CONSULTING PHYSICIAN TO THE BRISTOL GENERAL HOSPITAL.

THE first use of anæsthetics in surgery marks such an important era in human history that even the early steps in the story of their discovery are not without interest. Nitrous oxide was the first gaseous anæsthetic in modern times to have its properties tested and demonstrated, but since some curious doubts have been expressed as to the exact place and date of these investigations, and even as to the author of them, it may be worth while to review the existing evidence.

The Evidence Reviewed.

Dr. Priestley had isolated and inhaled oxygen in 1774, probably when staying at Bowood Park, Wilts, and either in 1772 or 1775 he discovered nitrous oxide. Our knowledge of gases was greatly extended about this time by Cavendish, Lavoisier, Black, and others; and the idea that some of these new gases might have great therapeutic properties when inhaled, appealed to many minds at the time. Indeed, a strong movement sprang up to test them, especially to obtain, if possible, a cure for consumption. The history of the effort falls into two stages, the first from, say, 1790 to 1798, and the second 1799 to 1810 or later. Dr. Beddoes, a brilliant Oxford lecturer on chemistry, was an early adherent, and in 1793 he got in touch with many able men all over the country who were investigating the effects of inhaling oxygen, hydrogen, carbonic acid, and "hydrocarbonate gas." He published and annotated the reports they sent in of their results in a volume of 500 pages entitled "Considerations on the Medicinal Use and Production of Factitious Airs, by Thomas Beddoes, M.D., and James Watt, Engineer, 1794." This quickly sold out, and editions in 1795 and 1796 followed. Watt gave to the association not only a valuable paper with fine drawings on the manufacture and storage of gases (down to a gasholder for conveyance in a postchaise), but also the help of the great firm of Boulton and Watt to devise and make reliable apparatus. The importance of this at that time is shown by Watt's own famous difficulties to find a man able to make a perfect steam cylinder.

It should be noted in this early period that the researches were confined to the gases above mentioned, and no paper appeared in the "Considerations" on nitrous oxide except one by S. Latham Mitchill, an American, who taught that it was so poisonous that a single inhalation of the pure gas would destroy life at once, and that it was actually the virus of the fevers and plague—a good reason for leaving all work on it till a slack time.

It has also been suggested that ether was among the gases investigated before nitrous oxide. The only ground for this is that in two of the many reports of treatment by inhalation of oxygen, &c., Pearson and Thornton said that they found 2 drachms of ether inhaled from a saucer or teapot helpful in phthisis, asthma, or catarrh, 1795, perhaps as we use Friar's balsam. The production of ether narcosis only began after Faraday, many years later on, announced that ether when deeply inhaled produced results similar to those which had been established for nitrous oxide already.

Beddoes's Experiments on Inhalation Treatment.

Beddoes was not content with registering the results of this collective investigation by others, and began experiments himself for the campaign against consumption. He first intended to commence in London, but finally settled in Clifton, 1793, where numbers of consumptives flocked to the Hotwells. With the help of friends he formed a laboratory in Hope-square and made detailed investigations on the physiology of respiration, and the manufacture and effects of the four gases mentioned above. He showed that inhalation treatment might be safely carried out. An abstract of this work is printed in the "Considerations."

His great aim, however, was to found a public hospital where systematic treatment of disease by gases and the study of their properties might be carried out, and for some years he appealed to the public for funds. Though it was the time of the great war, he met with a generous response. The Faculty of the Edinburgh School, with Alexander Monro at their head, supported him. He had many friends, such as the Darwins, the Wedgwoods, the Edgeworths, Reynolds the philanthropist, the Rev. Samuel Parr, Astley Cooper, Lambton the Earl of Dartmouth, the Marquis of Lansdowne, Dundas and Matthew Boulton. He was able to publish a list of 200 subscribers in 1795, and the appeal went on till 1798, when he determined to commence. Watt again helped him materially by finding and recommending to him young Humphry Davy, a remarkably able chemist and scientific worker. Beddoes induced him to come to Bristol to act as superintendent of the proposed Institute, and Davy, writing to his mother from Beddoes's house in October, 1798, tells her that Beddoes had given up to him the whole of the business of the hospital and that he was planning how it should be carried on when opened. In November he writes that they are negotiating for a very suitable house in Dowry-square. This was taken, and they were soon ready to begin work on the gases already known and any others which were promising. He says elsewhere that he felt it his duty as superintendent to investigate nitrous oxide, but evidently disliked the job. John Davy, in his "Memoirs of the Life of Sir Humphry Davy," p. 45 and p. 52, adds that in the beginning of 1799 he took up his residence in a house in Dowry-square, which was provided with a laboratory, and fitted up for the purposes of the institution. "Here he began investigating the effect of gases in respiration. Of these, nitrous oxide was one of the first he experimented on. Its agency he found to be of a very novel and wonderful kind." The details of this work are given in two articles.

Details of the Experiments on Nitrous Oxide.

1. A paper by Humphry Davy, entitled "Researches chiefly concerning Nitrous Oxide," extends to 340 pages, and was published in June, 1800 in Nicholson's *Journal of Natural Philosophy*, and was reprinted in the third volume of his "Life and Works." In it he reports fully the experiments which he made personally on the production, analysis, and reactions of nitrous oxide, and some allied gases, and their effects when absorbed by plants or respired by men or animals. He aimed at finding out whether it was respirable, and, if so, what were its therapeutic powers, and whether, in the language of the Brunonian system, it was a stimulant or depressing. We have seen that Dr. Mitchill had announced that it was highly poisonous—in fact, the principle of contagion. Davy says that he had shown the fallacy of this before he came to Bristol ("Works," vol. iii., p. 269), but at first the gas could not be obtained in a state of purity and he was quite alive to the danger of any mixture with "nitrous gas." As a matter of fact he did have a nearly fatal accident with the latter, and another with "hydrocarbonate."

He tells us that early in March, 1799, he and two friends cautiously tried inhaling the impure gas well diluted with naturally unpleasant results. Early in April he obtained the gas pure by heating ammonium nitrate, and on the 11th he ventured on a single inhalation of the pure gas. As it caused no pain or spasm he proceeded to inhale it for half a minute from a silk bag on the 16th. On April 17th, in the presence of Dr. Beddoes, after closing his nostrils and exhausting the air from his lungs, he breathed from his silk bag four quarts of the pure nitrous oxide until he became practically unconscious. The excitement and pleasurable thrilling produced were the chief things noted, and as no ill-effects followed he inhaled it very frequently for some months, examining its effects on the pulse, temperature, digestion, &c., in endless ways. It could clearly be inhaled without harm, and it was not a depressant. He got many other persons to respire it, and 18 of these wrote down their sensations for him, including Coleridge, Southey, Priestley's son, and some physicians. Its exhilarating properties led to its being called "laughing gas," but very little notice was taken of its anæsthetic properties. Davy, however, on p. 276, does mention its power of stopping intense physical pain. For during an attack of severe toothache he repeatedly took it, causing the pain to disappear for the time. Dr. Rob. Kinglake, on p. 299, records that it suspended the powers of hearing, seeing, and feeling, and finally Davy writes, p. 329: "As nitrous oxide in its extensive operation appears capable of destroying physical pain, it may probably be used with advantage in surgical operations in which no great effusion of blood takes place." I cannot explain his limiting phrases, but he clearly proposes it as an anæsthetic. The date is confirmed by a letter from him on this eventful April 17th to Davies Gilbert, where he says that he had this day discovered that the nitrous phosoxide is respirable when entirely freed from nitrous gas, and he had breathed it this day for seven minutes. He adds that Dr. Mitchill's theory is, of course, entirely overturned.

It was next tried as a remedy in various diseases, which was, of course, the object of the Institute. A few cases of nervous diseases were benefited, but in consumption both it and the other gases proved complete failures. The "Researches" were published, as we have said, in June, 1800, and in a rough draft of the preface he wrote: "These

experiments have been made since April, 1799, the period when I first breathed nitrous oxide. Ten months of incessant labour were employed in making them and three months in detailing them."

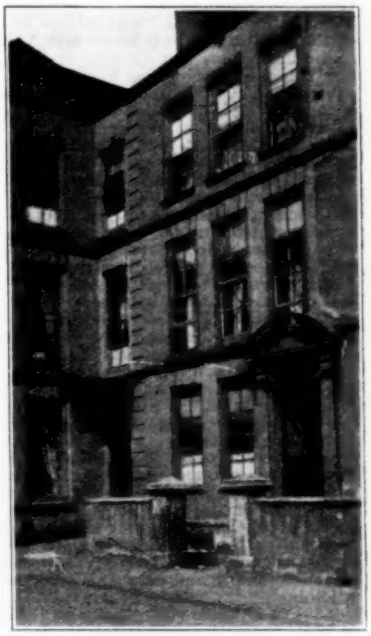
2. Dr. Beddoes's version is given in "A Notice of some Observations made at the Medical Pneumatic Institute," Longmans, May, 1799. He speaks most warmly of Davy's work, and adds that in their search for possible remedies Davy's attention was attracted to nitrous oxide, and that after making some experiments which showed that previous observers had been mistaken he (H. D.) had been led to respire it well diluted and in small quantities with depressing effects. When, however, it was obtained pure, Davy respired it freely in Beddoes's presence, and to his great astonishment showed extraordinary excitement and pleasure with no ill-results. He remarks that probably neither Priestley nor the Dutch chemists ever procured the gas so pure that it could be breathed with safety. It was easy enough to get a harmful gas, "as the author can attest from his own painful experience." He gives an abstract of the effects of inhalation by several of the healthy persons mentioned by Davy, noticing the loss of sensation by Kinglake and Morgan, and records the improvement effected in three paralytic patients. As to its use in phthisis he thinks that "the newly found gas may be regarded as a more powerful form of oxygen." On the whole he confirms Davy's claims and story up to May, 1799, and clearly thinks that no one had previously tested nitrous oxide narcosis.

For another eight months, then, Davy went on with his tests and observations before printing his "Researches," and suggesting it as an anæsthetic. In a final note to these "Researches" Beddoes adds a few observations of his own, but has nothing to say about the anæsthetic question. In detailing his own work Davy is careful to give many references to that of previous observers, and acknowledges his obligations to Beddoes. "In the conception of many experiments I have been aided by his conversation and advice," and he mentions some experiments of Beddoes, p. 197, and one suggested by him, p. 150.

Another volume of papers by Beddoes, Davy, and his fellow workers was published in 1799—viz., "Contributions to Physical and Mental Knowledge"—but nothing dealing with nitrous oxide appears in it. In January, 1801, Davy wrote from Dowry-square of the work going on at the Institute, but about that time he received the offer of an appointment at the Royal Institution in London, and left in March of that year. The Pneumatic Institute went on under Beddoes, John King, and J. E. Stock. Additional premises were taken on the Broad Quay in 1803, but the failure to obtain cures by inhalation led Beddoes to devote himself more to the teaching of preventive medicine (T. W. Jones, "Science Progress"). He died in 1808. Humphry Davy, as is well known, soon made very important discoveries in chemistry and electricity, and invented the miner's safety lamp in 1815. He rose to the highest rank among the scientists of the day, was made President of the Royal Society, and died in 1829.

Side view of the Institute, now 6 and 6A, Dowry-square.

It is an astonishing thing that after the power of nitrous oxide to destroy pain and its safety had been shown by elaborate and repeated experiments and its probable value as an anæsthetic in surgery had been pointed out by the most rising scientist of the time, practically no use was made of it for 45 years. Hickman, of Ludlow, about 1846, proved that operations on animals could be done painlessly under this gas or carbon dioxide, but no one in England or France would try it on human beings. However, the exciting effects of this "laughing gas" led to its being frequently inhaled as an amusing experiment at chemical lectures until, in 1844, Horace Wells, an American, after seeing it thus given, and noting that the person inhaling felt no pain if struck, insisted on having a tooth extracted under the gas, and forthwith employed it regularly in dentistry. Thus at last did the work of Davy and Beddoes bear fruit. If Davy had not purified it and had not popularised its use, Wells could not have introduced it into practice.



A view of 6 and 7, Dowry-square, the Institute being the corner house.

The House where the Experiments took Place.

We have now to inquire which was the house where this experimental testing of the gas took place. It is curious that doubts should have arisen and various sites been suggested. If we turn to the local directories of the time we find that the Institute and the names of the staff are given, but the house is left uncertain. In the "Bristol Directory" are these entries:—

1799 and 1800.—Hotwells Medical Pneumatic Institute. Physicians; T. Beddoes, M.D.; R. Kinglake, M.D.; P. Roget, M.D. Medical superintendent, H. Davy.

1801.—Hotwells Medical Pneumatic Institute. Physician, T. Beddoes; surgeon, J. King; medical superintendent, H. Davy.

1803.—Hotwells Medical Pneumatic Institute. Physician, T. Beddoes, M.D.; surgeon, J. King.

1805.—Medical Institution, Broad Quay and Hotwells. Physicians, T. Beddoes, J. E. Stock; surgeon, J. King.

Of the names here mentioned we may note that Peter Roget, author of "Thesaurus of English Words and Phrases," lived in Dowry-square; King, the surgeon, lived there, too, at No. 5, and Stock in Park-street, but where Kinglake resided is doubtful. However, he and Roget wrote down their experiences of inhalations, and Kinglake seems to have taken a large share in the investigations.

Stanley Hutton mentions that on March 21st, 1799, an advertisement appeared in the *Bristol Gazette and Public Advertizer* announcing the opening of the New Medical Institution. It says:—

"This institution is fixed at the upper end of Dowry-square, Hotwells, corner house. . . . It is intended, among other purposes, for treating diseases, hitherto found incurable, on a new plan. At present it is only ready for out-patients, and the

attendance of persons in consumption, asthma, dropsy, &c., which ordinary means have failed to remove, is desired. . . . Attendance will be given from 11 till 1 o'clock by Thomas Beddoes or Humphry Davy."

Joseph Cottle, the publisher, at this time a friend of Coleridge, Southey, and Wordsworth, published in 1837 his "Early Recollections," and in this he gives a long account of the Institute. On p. 29 he says "the house of the pneumatic institution was situated in Dowry-square, Hotwells; the house in the corner forming the north angle of the square." Thus Cottle and the advertisement tell us it was a corner house, and Cottle adds in the north angle. Now Dowry-square is a quadrangular area with buildings on three sides, and is part of a large open space which was probably once a common. The houses are fine specimens of early eighteenth century work built at a time when the Hotwells was a fashionable quarter—i.e., 1720 to 1750. They are practically unaltered, though now let out in tenements. On taking the bearings of the square, it turns out that one angle does practically point to the north (strictly north-north-west), and is occupied by a house with an L-shaped front. This house, now No. 6, is really the last of a row of lofty mansions forming the north-east side of the square. This house, too, runs back a long way. Its north-west side, unseen from the square, forms a façade of considerable size with nearly 20 windows facing the "Polygon" path up the hill to Clifton, and separated from it by the remains of a garden. Part of the block is now separated from the rest and is numbered 6A, but on each floor the loosely bricked-up doors and passages show the original plan of one house.

Quite recently, by the kindness of the owner, Mr. A. J. Mott, I was allowed to see the title deeds of the property which settle the question finally. In two distinct documents an abstract of title is given in almost the same words. They speak of all those two messuages, tenements, or dwelling-houses, Nos. 6 and 6A, formerly one dwelling-house standing in Dowry-square, and formerly in the occupation of Thomas Beddoes, M.D., and also the piece of ground or garden adjoining.

Thus it is quite clear that Dr. Beddoes was the tenant of this corner house in the north angle, the block now numbered 6 and 6A, formerly one house and garden. No. 6 by itself is far too small to provide rooms for experiments, a dispensary, and laboratories. It consists of two rooms and a closet on each of the five floors, and the Institute had, we know at one time 80 patients in attendance, and possibly eight or ten in-patients, according to a somewhat confused statement in Beddoes's "Notice." It was founded by an association of wealthy and influential people who wished that this experiment of the treatment of consumption and other diseases by the new gases should be carried out with every needful appliance and convenience. The combined block, with its doorways and passages now bricked up, did provide them with a compact and useful little hospital. No trace of any furnaces or stills can now be found on the premises. The garden mentioned in the "Researches" and in the deeds, though now partly built over, still opens into North Green-street or Polygon-lane.

Thus I think there can be no reasonable doubt that it was in the houses now numbered 6 and 6A, Dowry-square, that nitrous oxide was first obtained pure, and its properties were tested chemically and by inhalation, that this commenced in April, 1799, and that before June, 1800, Humphry Davy was able to recommend it as an anæsthetic in surgery after endless experiments. It appears to be the first gas to be suggested as an anæsthetic, and no one before Davy had ever ventured to experiment with and test this substance on account of its supposed deadly properties. He showed so thoroughly its harmless character and so popularised its use as an amusement that finally Horace Wells was led to employ it in dental operations in 1844. The great effort to find a cure for consumption was a failure, but indirectly it produced this and other valuable fruits.

Bibliography.

Memoir of the Life of Sir Humphry Davy and Collected Works. By John Davy. 1836.
National Dictionary of Biography. Thomas Beddoes and Humphry Davy.
J. E. Stock's Life of Thomas Beddoes. 1811.
Hutton's Bristol and its Famous Associations.
A Letter to Dr. Darwin on a New Method of Treating Consumption. T. Beddoes. 1793.
Observations on the Nature and Cure of Calculus, Sea Scurvy, Catarrh and Fever. T. Beddoes. 1793.
Considerations on the Medicinal Use and Production of Factitious Airs. By T. Beddoes, M.D., and James Watt, Engineer. 1794–5–6.
Notice of Some Observations made at the Pneumatic Institution, Bristol. Longmans. 1799.
Contributions to Physical and Mental Knowledge principally from the West of England. 1799. Collected by T. Beddoes.
Th. Beddoes, M.D.: A Neglected Chemist. By J. W. Jones. Science Progress, 1924–25, xix., 628.
R. Pearson's Short Account of the Different Kinds of Airs and their Medicinal Use. 1795.

INCOME-TAX ALLOWANCES FOR REPLACING CAR.

A.D. writes: "My four year old car which cost £270 is being replaced and an allowance of £80 is made on purchasing a new car. No depreciation claims have been made during the last years on the income-tax returns. Under the Finance Act, 1926, am I entitled to an allowance equivalent to the difference between the purchase and selling prices of the old car, or to an allowance equal to the difference between the selling price of the old car and the purchase price of a new car?"

How the allowance works in practice can be best seen by taking three illustrative cases in which the new car costs the same as, more than, or less than the original car respectively:—

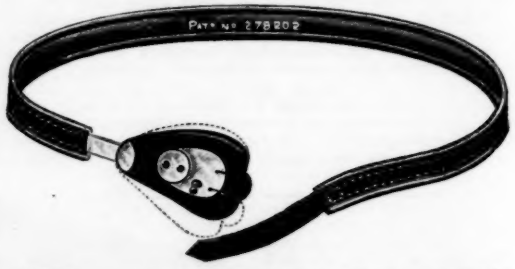
(*a*)	Cost of original car £270, replaced by new car costing	£270
	Allowed in part payment of new car	80
	The amount to be charged against profits in the year of change is	£190
(*b*)	If cost of new car is	£300
	And allowance on old car is	80
	The charge against profits would not be	£220
	but would still be £270 less £80—i.e.	£190

The difference between £220 and £190 is a capital outlay not chargeable against profits.

(*c*)	If cost of new car is	£250
	And allowance on old car is	80
	The charge against profits would be .. .. .. which is the expense of the renewal, there being no capital increase involved.	£170

THE DIGITRUSS.

THE accompanying illustration shows a form of truss devised by Mr. H. E. Cooper, of 162A, Adelaide-road, Brockley, London, S.E. 4, who has taken out a patent for it under the name of the "Digitruss." It has been designed to imitate the natural action of the hand and fingers when they are used to control a hernia, and the pad contains a light malleable metal plate fitted with a keyhole slot for horizontal and vertical adjustments. The plate terminates in three fingers which can be raised or depressed inde-



pendently so as to produce pressure where it is needed. The plate is separated from the patient's body by an india-rubber sponge pad, held in position by an india-rubber cover which can be slipped on and off. The pad is flat, soft, and resilient and is a satisfactory agent for applying pressure in the right place and without discomfort. It is claimed that the pad will automatically adjust itself to movements of the body in such a way that no understraps are required to keep it in position. It can be lowered or raised by loosening two screws in the locking plate.

From this description it should be evident that the Digitruss is an ingenious and convenient appliance.

ANÆSTHETICS AT THE SALPÊTRIÈRE.

IN a volume[1] recently issued from the Salpêtrière Hospital, Paris, there is a contribution from Dr. M. Boureau dealing with a series of 24,000 cases of general anæsthesia conducted by himself. The anæsthetics that he has employed were, except in some 160 cases, always either chloroform, ether, or ethyl chloride. Dr. Boureau's methods are as simple as his means, and he appears to find little use for complicated apparatus of any kind and to eschew nitrous oxide almost entirely. Nevertheless, his results, qua fatalities, have been good. He records three fatal cases of syncope, all with chloroform. His comments do not bring to light any facts or ideas which are new to anæsthetists in Great Britain except the pathetic plea that there should be a specialist in anæsthetics attached to every surgical service. This seems a quaint anachronism to issue from a great hospital.

[1] Travaux de la clinique chirurgicale et du centre anticancéreux de la Salpêtrière. By Prof. A. Gosset. Second series. Paris: Masson et Cie. 1927. Pp. 272. Fr. 65.